

PROCEEDINGS
OF THE
DORSET NATURAL HISTORY
AND
ANTIQUARIAN FIELD CLUB.

EDITED BY
NELSON M. RICHARDSON, B.A., F.E.S.,
Hon. Secretary.

VOLUME XXI.

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CONTENTS.

	PAGE
Index to Plates and Engravings	
Rules as revised Ap. 29, 1901	
Notice to Members	v.
List of Officers and Honorary Members	vi.
List of Members	viii.
List of New Members elected since the publication of Vol. XX. .. .	xvii.
The Proceedings of the Dorset Natural History and Antiquarian Field Club during the Season 1899-1900, by Nelson M. Richardson, B.A., F.E.S.	xix.
Anniversary Address of the President, May 8th, 1900	xxxviii.
Hon. Treasurer's Statement of Receipts and Expenditure from August 1st, 1899, to May 3rd, 1900	lxvii.
Hon. Secretary's Accounts from May 1st, 1899, to May 1st, 1900 .. .	lxviii.
General Statement, May 3rd, 1900	lxix.
Special Donations of Plates, Printing, &c., towards Vol. XXI. .. .	lxx.
<hr/>	
The Influence of Climatic and Geological Changes upon the British Flora, with Remarks upon Three New Dorset Plants, <i>Erica Lusitanica</i> , <i>Spartina Townsendi</i> , and <i>Setaria Verticillata</i> , by J. C. Mansel-Pleydell, D.L., F.L.S., F.G.S.	1
On New and Rare British Spiders, by Rev. O. Pickard-Cambridge, M.A., F.R.S., &c.	18
Notes on Bronze, by H. J. Moule, M.A.	40
An Ancient British Trackway, by Alfred Pope	105
Returns of Rainfall, &c., in Dorset in 1899, by Henry Storks Eaton (Past President of the Roy. Met. Soc.)	111
A List of Plants found in the Parishes of S. Minver, Cornwall, and Bradford Abbas, Dorset, by R. Darell S. Stephens, F.L.S., F.G.S., F.Z.S. .. .	125
On Horseshoes, by Captain Arthur Rickards	137
The Portion relating to Dorset of a Journal of an Excursion to Eastbury and Bristol, &c., in May and June, 1767, by Sir Joseph Banks, Bart. .. .	143
Poxwell Circle, by Rev. W. Miles Barnes	150
Notes on the Book of Cerne, by E. Doran Webb, F.S.A.	158
On some Roman Pavements and some Intrecci of this Country, chiefly with respect to their Meaning, by Hy. Colley March, M.D., F.S.A. .. .	162
Chalbury Rings and Rimbury, by H. J. Moule, M.A.	188
Notes on some Early English Printed Bibles, with Illustrations from the Originals in his Possession, by Nelson M. Richardson, B.A., F.E.S. .. .	193
Dungeon or Dunset Camp, by E. Cunningham	203
Preston Roman Pavement, by Hy. Colley March, M.D., F.S.A.	205
The Church of Wootton Glanville, by Rev. Canon C. H. Mayo, M.A. .. .	210
Roundchimneys, by C. W. Dale, F.E.S.	218
On the Collections at Glanvilles Wootton Manor House, by C. W. Dale, F.E.S.	223
Parnham, by Vincent J. Robinson, C.I.E.	229
Report on Observations of the First Appearances of Birds, Insects, &c., and the First Flowering of Plants in Dorset during 1899, by Nelson M. Richardson, B.A., F.E.S.	236

INDEX TO PLATES, ENGRAVINGS, &c.

	PAGE OR TO FACE PAGE
NEW AND RARE BRITISH SPIDERS	18
AN ANCIENT BRITISH TRACKWAY—	
Section of a supposed Roadway from Town to Amphitheatre discovered in excavating for new Stores adjoining the Dorchester Brewery. August 2nd, 1899	105
Map shewing position of Trackway	110
RETURNS OF RAINFALL, &c., IN DORSET IN 1899—	
Table I., Monthly Depth of Rain in Inches in 1899	118-9
Table II., Rainfall in 1899	120-1
Table III., Average Monthly Rainfall	122
Table IV., Statistics of the Temperature of the Air, and of the Humidity and Amount of Cloud at Winterbourne Steepleton Manor at 9 a.m., forwarded by Mr. H. Stilwell	123
Table V., Rainfall on Days of Thunderstorm and of Heavy Rain	124
NOTES ON THE BOOK OF CERNE—	
Figs. 1, 2, 3, 4.—The four coloured Illustrations of the Evan- gelists, from photographs taken from the original in the Cambridge University Library, by Nelson M. Richardson	158
Fig. 5.—A page of the Book of Cerne from a photograph of the original taken by Nelson M. Richardson (with tran- script)	160
ON SOME ROMAN PAVEMENTS AND SOME INTRECCI OF THIS COUNTRY, CHIEFLY WITH RESPECT TO THEIR MEANING—	
Roman Pavement found in Olga Road, Dorchester, in 1899, and now laid on the Floor of the Dorset County Museum	162
Figs. I.—XXIII.—Various Intrecci, &c., with an Account of the Illustrations	162
NOTES ON SOME EARLY ENGLISH PRINTED BIBLES, WITH ILLUSTRATIONS FROM THE ORIGINALS IN HIS POSSESSION—	
Fig. I.—Part of first page of 13th cent. MS. of Isaiah on vellum ; the large initial V is in blue, green, yellow, white, and red on a gold ground. (Full size.)	193
Fig. II.—The Byble * * * * truly and purely translated into Englysh by Thomas Matthew. m.d,xxxvii., Woodcut from Exodus x. The plague of locusts. (Full size.)	196
Fig. III.—Thomas Matthew's Bible, 1537. Woodcut from Revelation vi. The opening of the first four seals ; the four horsemen. (Almost full size : reduced by one-eighteenth)	196

Fig. IV.—The. holie. Bible. 1568. First edition of The Bishops' Bible. Woodcut from Revelation x., ver. 1, 2. (Half the size of original.)	200
Fig. V.—The. holie. Bible. 1568. First edition of The Bishops' Bible. Engraving of The EARL OF LEICESTER at the beginning of the Book of Joshua. His coat of arms is in the first initial A of the Book. (Slightly over half size.) A similar portrait of Lord Burleigh is engraved in the initial B of the first Psalm, and one of Elizabeth on the title page.	200
Fig. VI.—Authorized Version; First issue, 1611. Facsimile of Ruth iii., 15, containing the misprint "he" for "she" in "and he went into the citie," from which this is called the "He Bible." (Full size of original)	201
Fig. VII.—Authorized Version; First issue, 1611. First page of the Genealogies which occupy 34 pages. (Greatly reduced: size of framing line in original, $13\frac{5}{8}$ by $8\frac{1}{2}$ inches) ..	202
PRESTON ROMAN PAVEMENT—	
Roman Pavement <i>in situ</i> at Preston, near Weymouth	205
PARNHAM—	
East Front	229
REPORT ON OBSERVATIONS OF THE FIRST APPEARANCES OF BIRDS, INSECTS, &c., AND THE FIRST FLOWERING OF PLANTS IN DORSET DURING 1899—	
First Appearances of Birds in Dorset in 1899	240
Earliest Dorset Records of Plants in Flower in 1899	241
First Appearances of Insects, &c., in Dorset in 1899	242





RULES

OF

THE DORSET NATURAL HISTORY

AND

ANTIQUARIAN FIELD CLUB.

*(As amended at the Annual General Meeting held April 29th,
1901.)*

OBJECT AND CONSTITUTION.

1.—The Club shall be called The Dorset Natural History and Antiquarian Field Club, and shall have for a short title The Dorset Field Club.

The object of the Club is to promote and encourage an interest in the study of the Physical Sciences and Archæology generally, especially the Natural History of the County of Dorset and its Antiquities, Prehistoric records, and Ethnology. It shall use its influence to prevent, as far as possible, the extirpation of rare plants and animals, and to promote the preservation of the Antiquities of the County.

2.—The Club shall consist of (i.) three Officers, President, Honorary Secretary, and Honorary Treasurer, who shall be elected annually and shall form the Executive body for its management ; (ii.) Vice-Presidents, of whom the Honorary Secretary and Treasurer shall be two, *ex-officio* ; (iii.) The Honorary Editor of the Annual Volume of Proceedings ; (iv.) Ordinary Members ; (v.) Honorary Members. The President, Vice-Presidents, and Editor shall form a Council to decide questions referred to them

RULES OF THE D.N.H. AND A.F.C.

by the Executive. The Editor shall be nominated by one of the incoming Executive and elected at the Annual Meeting.

There may also be one or more Honorary Assistant Secretaries, who shall be nominated by the Honorary Secretary, seconded by the President or Treasurer, and elected by the Members at the Annual Meeting.

Members may be appointed by the remaining Officers to fill interim vacancies in the Executive Body until the following Annual Meeting.

PRESIDENT AND VICE-PRESIDENTS.

3.—The President shall take the chair at all Meetings, and have an original and a casting vote on all questions before the Meeting. In addition to the two *ex-officio* Vice-Presidents, at least three others shall be nominated by the President, and elected at the Annual Meeting.

HON. SECRETARY.

4.—The Secretary shall perform all the usual secretarial work; cause a programme of each Meeting to be sent to every Member seven days at least before such Meeting; make all preparations for carrying out Meetings, and with or without the help of the Assistant Secretary or others, conduct all Field Meetings. On any question arising between the Secretary (or Acting Secretary) and a Member at a Field Meeting, the decision of the Secretary shall be final.

The Secretary shall receive from each Member his or her share of the day's expenses, and thereout defray all incidental costs and charges of the Meeting, rendering an account of the same before the Annual Meeting to the Treasurer; any surplus of such collection shall form part of the General Fund, and any deficit be defrayed out of that fund.

HON. TREASURER.

5.—The Treasurer shall keep an account of Subscriptions and all other moneys of the Club received and of all Disbursements, rendering at the Annual General Meeting a balance sheet of the

RULES OF THE D.N.H. AND A.F.C.

same, as well as a general statement of the Club's finances. He shall send copies of the Annual Volume of Proceedings for each year to Ordinary Members who have paid their subscriptions for that year (as nearly as may be possible, in the order of such payment), to Honorary Members and to such Societies and individuals as the Club may, from time to time, appoint to receive them. He shall also furnish a list at each Annual Meeting, containing the names of all Members in arrear, with the amount of their indebtedness to the Club. He shall also give notice of their election to all New Members.

ORDINARY MEMBERS.

6.—Ordinary Members are entitled to be present and take part in the Club's proceedings at all Meetings, and to receive the published "Proceedings" of the Club, when issued, for the year for which their Subscription has been paid.

7.—Every Candidate for admission shall be nominated in writing by one member and seconded by another, to one of whom at least he must be personally known. He may be proposed at any Meeting, and shall receive programmes of Meetings and exercise all the functions of a Member except voting and bringing friends to Meetings. His name shall appear in the programme of the first following Meeting at which a Ballot is held, when he shall be elected by ballot, one black ball in six to exclude. Twelve members shall form a quorum for the purpose of election. A Ballot shall be held at the Annual and Winter Meetings, and may be held at any other Meeting, should the Executive so decide, notice being given in the Programme.

8.—The Annual Subscription shall be 10s., which shall become due and payable in advance on the first of January in each year. Subscriptions paid on election after September in each year shall be considered as subscriptions for the following year, unless otherwise agreed upon by such Member and the Treasurer. Every Member shall pay immediately after his election the sum of ten shillings as entrance fee, in addition to his first Annual Subscription.

RULES OF THE D.N.H. AND A.F.C.

9.—No person elected a Member shall be entitled to exercise any privilege as such until he has paid his entrance fee and first subscription, and no Member shall be entitled to receive a copy of the "Proceedings" for any year until his subscription for that year has been paid.

10.—A registered letter shall be sent by the Hon. Treasurer to any Member whose subscription is two years in arrear at the date of any Annual Meeting, demanding payment within 28 days, failing which he shall cease to be a Member of the Club, but shall, nevertheless, be liable for the arrears then due.

11.—Members desiring to leave the Club shall give notice of the same in writing to the Treasurer (or Secretary), but unless such notice is given before the end of January in any year they shall be liable to pay the Annual Subscription due to the Club on and after January 1st in that year.

HONORARY MEMBERS.

12.—Honorary Members shall consist of persons eminent for scientific or natural history attainments, and shall be elected in the same way as Ordinary Members, except that they must be proposed and seconded by two of the Executive. They pay no Subscription, and have all the privileges of Ordinary Members except voting.

MEETINGS.

13.—The Annual General Meeting shall be held as near the first week in May as may be convenient ; to receive the outgoing President's Address (if any) and the Treasurer's financial report ; to elect the Officers and Editor for the ensuing year ; to determine the number (which shall usually be three or four), dates and places of Field Meetings during the ensuing summer, and for general purposes.

14.—Two Winter Meetings shall usually be held in or about the months of December and February for the exhibition of Objects of Interest (to which not more than one hour of the time before the reading of the Papers shall be devoted), for the reading and discussion of Papers, and for general purposes.

RULES OF THE D.N.H. AND A.F.C.

The Dates and Places of the Winter and Annual Meetings shall be decided by the Executive.

15.—A Member may bring Friends to the Meetings subject to the following restrictions:—No person (except the husband, wife, or child of a Member) may attend a Meeting unaccompanied by the Member introducing him, unless such Member be prevented from attending by illness, and no Member may take with him to a *Field Meeting* more than one Friend, whose name and address must be submitted to and approved by the Hon. Secretary.

The above restrictions do not apply to the Executive or to the Acting Secretary at the Meeting.

16.—Members must give due notice (with prepayment of expenses) to the Hon. Secretary of their intention to be present, with or without a Friend, at any Field Meeting, in return for which the Secretary shall send to the Member a card of admission to the Meeting, to be produced when required. Any Member who, having given such notice, fails to attend will be liable only for any expenses actually incurred on his account, and any balance will be returned to him on application. The sum of 1s., or such other amount as the Hon. Secretary may consider necessary, shall be charged to each person attending a Field Meeting for Incidental Expenses.

17.—The Executive may at any time call a Special General Meeting of the Members upon a written requisition (signed by Eight Members) being sent to the Honorary Secretary. Any proposition to be submitted shall be stated in the Notice, which shall be sent to each Member of the Club not later than seven days before the Meeting.

PAPERS.

18.—Notice shall be given to the Secretary, a convenient time before each Meeting, of any motion to be made or any Paper or communication desired to be read, with its title and a short sketch of its scope or contents. The insertion of these in the Programme is subject to the consent of the Officers of the Club, or any two of them.

RULES OF THE D.N.H. AND A.F.C.

PUBLICATIONS.

19.—The Publications of the Club shall be in the hands of the Executive, who shall appoint annually Three or more ordinary Members to form with them and the Editor a Publication Committee for the purpose of deciding upon the contents of the Annual Volume. These contents shall consist of original papers and communications written for the Club, and either read, or accepted as read, at a General Meeting ; also of the Secretary's Reports of Meetings, the Treasurer's Financial Statement and Balance Sheet, a list to date of all Members of the Club, and of those elected in the current or previous year, with the names of their proposers and seconders. The Annual Volume shall be edited by the Editor subject to the direction of the Publication Committee.

20.—Twenty-five copies of his paper shall be presented to each author whose communication shall appear in the volume as a separate article, on notice being given by him to the Publisher to that effect.

NEW RULES.

21.—No alteration in or addition to these Rules shall be made except with the consent of a majority of three-fourths of the Members present at the Annual General Meeting, full notice of the proposed alteration or addition having been given both in the current Programme and in that of the previous Meeting.



NOTICES.

THE PLATE FUND.

The Executive desire to call the attention of liberal and public-spirited Members of the D.F.C. to the existence of a "Plate Fund" for defraying the very heavy expense of the Illustrations in the volumes of Proceedings. In some cases, as in certain Papers of this volume, the writer generously presents the engravings; but in order to maintain the high standard of excellence attained by recent volumes, without again incurring so deep an obligation to an individual Member, a special subsidy would be extremely valuable.

NOTICE BY HON. TREASURER.

VOLS. OF PROCEEDINGS.

There are found to be a few complete sets of back numbers of Field Club Proceedings in the Treasurer's hands for disposal at the following rates, to Members only:—

	£	s.	d.
A. Complete set of 20 vols. at 7s. ..	7	0	0
B. Half set of 10 later vols. at 8s. ..	4	0	0
C. Quarter set of 5 later vols. at 9s. ..	2	5	0

Separate Vols. 10s. each, except copies of the scarce early Vols., I.—IV. inclusive, which are 12s. each. All applications must be prepaid and will be dealt with in order of priority; of two or more simultaneous applications the larger order will take precedence.

Copies of the General Index to the first 16 volumes of Proceedings can be obtained at 6d. each.

Copies of the Rules can be obtained at 3d. each, post free.



The Dorset Natural History

AND

Antiquarian Field Club.

INAUGURATED MARCH 26th, 1875.

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Montevideo, near Weymouth.

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OF THE

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Peveril Tower, Swanage

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Harston, Comdr. F.A. (late R.N.)	Newlands, Glendenning Avenue, Weymouth
Hart-Dyke, Rev. Canon P.	Lullinstone, Wimborne
Hart, Edward, Esq., F.Z.S.	Christchurch
Hasluck, Rev. Ernest	Handley Vicarage, Salisbury
Hassell, Miss	Westfield Lodge, Parkstone, Dorset
Hawkins, W., Esq.	Broadwey, Dorchester
Hayne, R., Esq.	Fordington House, Dorchester
Head, J. Merrick, Esq.	Pennsylvania Castle, Portland
Henning, Mrs.	Frome, Dorchester
Hibbs, Geo., Esq.	Bere Regis, Wareham

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|---|--|
| Highton, Rev. E. | Tarrant Keynston Rectory, Blandford |
| Hogg, B. A., Esq. | Dorchester |
| Honeywell, F., Esq. | The Elms, Surbiton Road, Kingston-on-Thames |
| House, Edward, Esq. | Tomson, Blandford |
| Howard, Sir R. N. | Weymouth |
| Hudleston, W. H., Esq., F.R.S. | 8, Stanhope Gardens, Queen's Gate, London |
| Huntley, H. E., Esq. | Charlton House, Blandford |
| Hurdle, H. A., Esq. | 2, Frederick Place, Weymouth |
| Hussey, Rev. J. | Pimperne Rectory, Blandford |
| Kerr, E. W., Esq., M.D. | South Street, Dorchester |
| Kettlewell, Geo. Douglas, Esq. | Eagle House, Blandford |
| Lafontaine, Alfred C. de, Esq. | Athelhampton, Dorchester |
| Lange, Mrs. R. M. de | The Haven, Upwey, Dorchester |
| Langford, Rev. J. F. | The Parsonage, Place Anglicani, Nice |
| Lawton, H. A., Esq., M.D. | 98, High Street, Poole |
| Leach, J. Comyns, Esq., M.D. | The Lindens, Sturminster Newton, Blandford |
| Leeds, Oglander, Esq. | The Cottage, Bridport |
| Lee, W. H. Markham, Esq., I.S.M. | Wyke Regis, Weymouth |
| Legge, Miss Jane | Alington Villa, Bridport |
| Le Jeune, H., Esq. | St. Ives, Upper Parkstone, Dorset |
| Leslie, Rev. E. C. | Came Rectory, Dorchester |
| Linklater, Rev. Robert | Holy Trinity Rectory, Stroud Green, London, N. |
| Lister, Arthur, Esq. | High Cliffe, Lyme Regis |
| Lister, Miss Guilelma | High Cliffe, Lyme Regis |
| Lock, Mrs. A. H. | 53, High West Street, Dorchester |
| Lock, B. F., Esq. | 11, New Square, Lincoln's Inn, London |
| Lock, Miss Mary C. | 42, High East Street, Dorchester |
| Lonsdale, Rev. J. H. | Fontnell Magna, Shaftesbury |
| Lush, Wm. Vaudrey, Esq., M.D.,
F.R.C.P. | 12, Frederick Place, Weymouth |
| Lush, Mrs. | 12, Frederick Place, Weymouth |
| Lynes, Rev. John | Percy House, Wimborne |
| Macdonald, P. W., Esq., M.D. | County Asylum, Dorchester |
| Macqueen, J. Rainier, Esq. | Brookhouse, Chailey, Sussex |
| Manger, A. T., Esq. | Stock Hill, Gillingham |
| Mansel-Pleydell, J. C., Esq.
(President) | Whatcombe, Blandford |
| Mansel-Pleydell, Mrs. | Whatcombe, Blandford |
| Mansel-Pleydell, Rev. J. C. | Sturminster Newton Vicarage, Blandford |
| Mansel, Miss Louisa | Sulby Hall, Rugby |
| March, H. Colley, Esq., M.D. | Portisham, Dorchester |

- Marriott, Sir W. Smith, Bart.
 Martin, Miss Eileen
 Mate, William, Esq.
 Maunsell, Rev. F. W.
 Mayo, Rev. Canon C. H.
 Mead, Miss
 Medlycott, Sir Edwd. B., Bart.
 Middleton, H. B., Esq.
 Middleton, Miss L. M.
 Miller, Rev. J. A., B.D.
 Milne, Rev. Percy H.
 Moorhead, J., Esq., M.D.
 Morrice, G. G., Esq., M.D.
 Morton, Mrs.
 Moule, H. J., Esq.
 Moullin, Arthur D., Esq.
 Murray, Rev. R. P., F.L.S.
 Okeden, Colonel Parry
 Palmer, Colonel R. H.
 Pass, Alfred C., Esq.
 Patey, Miss
 Payne, Miss Eleanor
 Payne, Miss Florence
 Pearson, W. E., Esq.
 Peck, Gerald R., Esq.
 Penny, Rev. J.
 Perkins, Rev. T.
 Peto, Sir Henry, Bart.
 Phillips, James Henry, Esq.
 Phillips, Mrs.
 Philpot, J. E. D., Esq.
 Philpots, John R., Esq., L.R.C.P.
 and S. Ed., J.P.
 Pickard-Cambridge, A. W., Esq.
 Pickard-Cambridge, Mrs.
 Pickard-Cambridge, Rev. O.,
 M.A., F.R.S.,
 Pike, T. M., Esq.
 Pond, S., Esq.
 Ponting, Chas. E., Esq., F.S.A.
 Pope, A., Esq.
 Pope, George, Esq.
 Prideaux, C. S., Esq.
 The Down House, Blandford
 2, Greenhill, Weymouth
 62, Commercial Road, Bournemouth
 Symondsburv Rectory, Bridport
 Longburton Vicarage, Sherborne
 5, Brunswick Buildings, Weymouth
 Ven, Milborne Port, Sherborne
 Bradford Peverell, Dorchester
 Lulworth
 The College, Weymouth
 Evershot Rectory, Dorchester
 1, Royal Terrace, Weymouth
 Holy Trinity Vicarage, Weymouth
 14, Victoria Terrace, Weymouth
 The County Museum, Dorchester
 Fermain, Parkstone
 Shapwick Rectory, Blandford
 Turnworth, Blandford
 8, Clydesdale Mansions, Clydesdale Road,
 London, W.
 Hawthornden, Clifton Down, near Bristol
 Saxilby Vicarage, Lincoln
 13, Greenhill, Weymouth
 Rydal, Wimborne
 4, Westerhall Villas, Weymouth
 Sandacres, Parkstone
 Tarrant Rushton Rectory, Blandford
 Turnworth Rectory, Blandford
 Chedington Court, Misterton, Crewkerne
 Poole
 Okeford Fitzpaine, Blandford
 Holme Cleve, Lyme Regis
 Moorcroft, Parkstone
 Balliol College, Oxford .
 10, Gloucester Row, Weymouth
 Bloxworth Rectory, Wareham
 c/o Miss Pike, Elim, Shortlands, Kent
 Blandford
 Wye House, Marlborough
 South Court, Dorchester
 Bourne Hall, Bournemouth
 51, High West Street, Dorchester

- | | |
|--|---|
| Prideaux, W. de C. | 51, High West Street, Dorchester |
| Pye, William, Esq. | Dunmore, Rodwell, Weymouth |
| Radclyffe, Eustace, Esq. | Hyde, Wareham |
| Ratcliff, Mrs. M. E. | Alberta, Weymouth |
| Ravenhill, Rev. Canon H., R.D. | Buckland Newton Vicarage, Dorchester |
| Reeve, Mrs. Henry | Rutland Gate, London, W. |
| Rendell, W. F., Esq. | Hallow Dene, Parkstone |
| Reynolds, Alfred, Esq. | Milborne Port, Sherborne |
| Reynolds, Mrs. Arthur | Westland, Bridport |
| Richardson, N. M., Esq. (<i>Vice-President and Hon. Secretary</i>) | Montevideo, Chickerell, near Weymouth |
| Rickards, Captain Arthur | Wellington Lodge, Weymouth |
| Ridley, Rev. O. M. | East Hill, Charminster, Dorchester |
| Ridley, Rev. J. | The Rectory, Pulham, Dorchester |
| Rixon, W. A., Esq. | Alfoxton Park, Holford, Bridgwater |
| Robinson, Mrs. Octavius | Redlynch House, Downton, Salisbury |
| Robinson, Sir Charles, F.S.A. | Newton Manor, Swanage |
| Robinson, Vincent, Esq. | Parnham, Beaminster |
| Rodd, Edward Stanhope, Esq. | Chardstock House, Chard |
| Rooper, T. G., Esq. | Pen Selwood, Bournemouth |
| Ruegg, L. H., Esq. | Westbury, Sherborne |
| Russell, Colonel | Clavinia, Weymouth |
| Russell, Miss Katherine | Thorneloe, Bridport |
| Schuster, Rev. W. P. | Vicarage, West Lulworth |
| Schofield, F., Esq., M.D. | Windermere, Spa Road, Weymouth |
| Searle, Allan, Esq. | Wilts and Dorset Banking Company, Southampton |
| Shearman, John, Esq. | Peveril House, Swanage |
| Shephard, Colonel C. S. | Southcot, Charminster, Dorchester |
| Shepherd, T., Esq. | Kingsley, Bournemouth |
| Sherren, J. A., Esq. | Weymouth |
| Simpson, Jas., Esq. | Minterne Grange, Parkstone |
| Simpson, Miss | 12, Greenhill, Weymouth |
| Slater, Robert, Esq., F.G.S. | Waverley, Swanage |
| Smith, Howard Lyon, Esq.,
L.R.C.P. | Buckland House, Buckland Newton, Dorchester |
| Snook, S. P., Esq., M.R.C.S.
Engld., L.R.C.P., Lond. | 20, Trinity Road, Weymouth |
| Solly, Rev. H. S. | Bridport |
| Sowter, Rev. F. B., the Ven.
Archdeacon of Dorset | Clevedon Lodge, Wimborne |
| Sparks, W., Esq. | Crewkerne |
| Stephens, R. Darrell, Esq., F.G.S.,
F.L.S., F.Z.S. | Trewornan, Wadebridge |

- Stephens, W. L., Esq.
 Stilwell, Mrs.
 Stone, Walter Boswell, Esq.
 Storer, Lt.-Col., late R.E.
 Stopford, Admiral
 Stroud, Rev. J.
 Stuart-Gray, Colonel Hon. Jas.
 Stuart, Hon. Morton G.
 Sturdy, Leonard, Esq.
 Sturdy, Philip, Esq.
 Sturt, General C. S.
 Sturt, W. Neville, Esq.
 Suttill, H. S., Esq.
 Swift, B. R., Esq.
 Sydenham, David, Esq.
 Sykes, Ernest R., Esq.
 Symes, G. P., Esq.
 Taylor, J. Herbert, Esq.
 Tennant, Major-General
 Thompson, Rev. G.
 Thomson, J. Roberts, Esq., M.D.
 Thurlow, Rev. Alfred R.
 Tomson, Arthur, Esq.
 Troyte-Bullock, Mrs.
 Tucker, Mrs.
 Turner, W., Esq.
 Udal, The Hon. Chief Justice
 Usher, Rev. R., F.L.S.
 Usherwood, Rev. Canon T. E.
 Vawdrey, Mrs.
 Vosper-Thomas, Rev. A. F. C.
 Vosper-Thomas, Rev. S.
 Walker, Rev. S. A.
 Ward, Rev. J. H.
 Warre, Rev. Canon F.
 Watson, Rev. C. O.
 Watts, Rev. Canon R. R., R.D.
 Waugh, Rev. W. R., F.R.A.S.
 Weaver, Rev. F. W., F.S.A.
 Webb, E. Doran, Esq., F.S.A.
 Whitby, Joseph, Esq.
 Wilcox, B. A., Esq.
 Wilkinson, H. A., Esq.
 Westbury, Bridport
 Steepleton Manor, Dorchester
 206, Iffley Road, Oxford
 Keavil, Bournemouth
 Shroton House, Blandford
 South Perrott, Crewkerne
 Kinfauns, Perthshire
 2, Belford Park, Edinburgh
 Trigon, Wareham
 Branksome, near Bournemouth
 The Dinedors, Weymouth
 India Office, London, S.W.
 Pymore, Bridport
 45, South Street, Dorchester
 Bournemouth
 3, Gray's Inn Place, Gray's Inn, London,
 W.C.
 11, Victoria Terrace, Weymouth
 Grayrigg, Parkstone
 8, Belvedere, Weymouth
 Highbury, Bodorgan Road, Bournemouth
 Monkchester, Bournemouth
 Weymouth
 Sydling St. Nicholas, Dorchester
 North Coker, Yeovil
 Treverbryn, Weymouth
 High Street, Poole
 Antigua, W. Indies
 East Lulworth Vicarage, Wareham
 Rossmore, Parkstone
 Dorchester Road, Weymouth
 St. Luke's, Bilston, Staffordshire
 Moxley, Wednesbury, Staffordshire
 Spetisbury Rectory, Blandford
 Silverton Rectory, near Exeter, Devon
 Bemerton Rectory, Salisbury
 The Vicarage, Bothenhampton, near Bridport
 Stourpaine Rectory, Blandford
 The Observatory, Portland
 Milton Vicarage, Evercreech, Somerset
 Mitre House, Salisbury
 Frome St. Quintin House, Cattistock, Dorset
 28, Portman Square, London, W.
 Maiden Castle House, Dorchester

Wilkinson, Rev. J. H.	Melcombe Bingham Rectory, Dorchester
Williams, E. W., Esq.	Herringston, Dorchester
Williams, Miss	Osmington House, Weymouth
Williams, Robert, Esq., M.P.	Bridehead, Dorchester
Williams, Mrs.	Bridehead, Dorchester
Wilton, Dr. John Pleydell	Pulteney Buildings, Weymouth
Wilton, E. H., Esq.	32, High Street, Evesham, Worcestershire
Woodhouse, Miss	Chilmore, Ansty, Dorchester
Workman, J. Reece, Esq., C.E.	Catherington, Millbrook, Southampton
Wright, H. E., Esq.	4, West Garden Street, Glasgow
Yeatman, Mrs.	Treverbyn, Warminster
Yóung, E. W., Esq.	Dorchester

The above list includes the New Members elected up to and on
February 28th, 1901.



New Members Elected since the Publication of Vol. xx.

The names of the Proposer and Seconder are given in brackets opposite to the name of the new Member. The addresses may be seen in the general list of Members.

PROPOSED DECEMBER 19TH, 1899; ELECTED FEBRUARY 26TH, 1900.

- | | |
|-------------------------------------|---------------------------|
| 1. Mrs. H. Du Boulay | { Hon. Secretary |
| | { J. Moorhead, Esq., M.D. |
| 2. Herbert A. Wilkinson, Esq. | { H. C. March, Esq., M.D. |
| | { W. Hawkins, Esq. |
| 3. William de Courey Prideaux, Esq. | { H. J. Moule, Esq. |
| | { C. S. Prideaux, Esq. |
| 4. Walter L. Stephens, Esq. | { Mrs. A. Reynolds |
| | { Rev. C. O. Watson |
| 5. Colonel C. J. O'n Ferguson | { Colonel Cotton |
| | { Colonel Russell |

PROPOSED FEBRUARY 26TH; ELECTED AT DORCHESTER DECEMBER 13TH, 1900.

- | | |
|-----------------------------|------------------------|
| 1. James Bowker, Esq. | { J. R. Philpots, Esq. |
| | { Rev. R. A. Chudleigh |
| 2. Miss Brown | { Rev. Ed. Acton |
| | { Mrs. Acton |
| 3. Rev. Charles H. S. Bower | { H. S. Bower, Esq. |
| | { Rev. Sir T. Baker |

PROPOSED MAY 8TH; ELECTED AT DORCHESTER DECEMBER 13TH, 1900.

- | | |
|--|---------------------------|
| 4. Admiral Stopford | { Rev. Sir T. Baker |
| | { H. S. Bower, Esq. |
| 5. Henry Cox, Esq., F.S.A., F.R.G.S.,
M.G.S., &c. | { J. Moorhead, Esq., M.D. |
| | { E. Cunningham, Esq. |
| 6. George Pope, Esq. | { A. Pope, Esq. |
| | { H. J. Moule, Esq. |
| 7. Rev. E. C. Leslie | { Rev. S. E. V. Filleul |
| | { Mrs. Ratcliff |
| 8. Colonel Storer | { Hon. Treasurer. |
| | { President. |
| 9. Arthur Tomson, Esq. | { John Brown, Esq. |
| | { Rev. M. Hankey. |
| 10. F. Schofield, Esq., M.D. | { E. Cunningham, Esq. |
| | { Mrs. Ratcliff. |

PROPOSED JUNE 8TH; ELECTED AT DORCHESTER DECEMBER 13TH, 1900.

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|--------------------------|--|
| 11. Rev. J. H. Wilkinson | { Rev. Canon Mayo.
C. W. Dale, Esq. |
|--------------------------|--|

PROPOSED JULY 26TH; ELECTED AT DORCHESTER DECEMBER 13TH, 1900.

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|-------------------------|--|
| 12. Rev. Ernest Hasluck | { E. A. Fry, Esq.
Rev. Canon Watts. |
| 13. Mrs. R. M. de Lange | { W. E. Pearson, Esq.
Miss Dansey |

PROPOSED SEPTEMBER 10TH; ELECTED AT DORCHESTER DECEMBER 13TH, 1900.

- | | |
|--------------------------------------|--|
| 14. Miss Jane Legge | { W. Colfox, Esq.
Miss Simpson. |
| 15. Colonel John Bullen Symes Bullen | { W. Colfox, Esq.
T. A. Colfox, Esq. |
| 16. Rev. T. B. Beesley | { Rev. H. Williams Freeman.
C. W. Dale, Esq. |
| 17. Miss L. M. Middleton | { B. Browning, Esq., M.D.
H. Colley March, Esq., M.D. |

PROPOSED DECEMBER 13TH, 1900; ELECTED AT DORCHESTER,
FEBRUARY 28TH, 1901.

As Honorary Members.

- | | |
|-------------------------------------|---------------------------------|
| 1. A. J. Jukes-Browne, Esq., F.G.S. | { President.
Hon. Secretary. |
| 2. R. Lydekker, Esq., F.R.S. | { President.
Hon. Secretary. |
| 3. Clement Reid, Esq., F.R.S. | { President.
Hon. Secretary. |
| 4. A. Smith-Woodward, Esq., F.G.S. | { President.
Hon. Secretary. |

As Ordinary Members.

- | | |
|------------------------------------|--|
| 1. W. H. Markham Lee, Esq., I.S.M. | { W. Pye, Esq.
Miss Martin. |
| 2. Rev. J. Ridley | { Colonel R. Williams, M.P.
Rev. Canon Ravenhill. |
| 3. Gerald R. Peck, Esq. | { F. J. Beckford, Esq.
H. Forde, Esq. |
| 4. Ernest E. L. Dixon, Esq. | { John Brown, Esq.
W. H. Hudleston, Esq., F.R.S. |
| 5. Stewart Hardwick, Esq. | { George Galpin, Esq.
Hon. Treasurer. |



The Proceedings
OF THE
Dorset Natural History & Antiquarian
Field Club

DURING THE SEASON 1899-1900.

By NELSON M. RICHARDSON, B.A., F.E.S.

The work of the Club during the season 1899-1900 has comprised two Indoor Meetings at the County Museum, Dorchester, on Tuesday, December 19th, 1899, and Monday, February 26th, 1900; the Annual Business Meeting at the County Museum on Tuesday, May 8th, 1900; and Field Meetings at Glanvilles Wootton on Friday, June 8th; at Winchester on Thursday and Friday, July 26th and 27th; and at Poxwell and Moreton on Monday, September 10th, 1900.

Volume XX. of the "Proceedings" was issued during the winter.

THE FIRST WINTER MEETING was held in the Reading Room of the Dorset County Museum on Tuesday, December 19th, at noon. The President being absent through illness, the chair was taken by Rev. Sir Talbot Baker, about 20 members and friends being present.

NEW MEMBERS.—Seven were balloted for and elected and six were proposed.

NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY.—The Secretary (Mr. Hugh Blakiston) gave an account of the objects of this Trust, which was founded in 1894, with the Duke of Westminster as President, for the purpose of holding such places in trust for the Nation. It was desirable that it should have the co-operation of all Field Clubs and similar societies, and he had come for the purpose of inviting the Dorset Field Club to affiliate itself to the central society.

It was resolved that the Club be thus affiliated, and (at a later meeting on June 8th) that a subscription of £1 ls. per annum be paid to the Trust.

A Sub-Committee was subsequently appointed. (See under meeting of Feb. 26th, 1900.)

GENERAL BUSINESS.—The following publications, lately received, were laid on the table and presented by the Club to the Dorset County Museum Library:—

The 28th Annual Report of the Chester Society of Natural Science, Literature, and Art, 1898-9.

Part I., Vol. IV., of the Bulletin of the Geological Institution of the University of Upsala, 1898.

Fasciculo xi., Tomo ii., of the Anales del Museo Nacional de Montevideo, 1899.

It was resolved to exchange publications with the Somerset Archaeological Society.

EXHIBITS.—

BY CAPTAIN A. RICKARDS:

- (1) A fossil Crustacean found in a bay nine miles west of Torquay.
- (2) A fine two-handled bronze pot with three feet, dredged up in the German Ocean. At the British Museum it was believed to be Irish, and more than 1,000 years old. Presented to the Dorset County Museum.
- (3) An iron stand for a lamp, from a tomb in Devonshire.

BY THE HON. SECRETARY:

- (4) Pomegranates brightly coloured and ripe, or very nearly so, grown on a south wall at Montevideo, Chickerell, fully exposed, and picked in Dec., 1899. The tree had been planted about 10 years, and flowered every year, often profusely, but this was the first year in which it had borne fruit. He believed the occurrence was unusual in England. He also exhibited photographs of the pomegranates on the tree, and of a plant of *Aralia Sieboldi* in flower in his garden.

BY THE CURATOR OF THE MUSEUM:

- (5) Four casts of the jaw of *Megalosaurus Bucklandi* in Sherborne School Museum. The casts are beautifully made, and have been recently purchased for the Museum. The original was found in the neighbourhood of Sherborne in the Freestone of the Inferior Oolite, and was reported on by Professor Owen as being of great value, no such perfect specimen being in the British Museum. See Proc. V., p. 144, and XII., p. xxvii.

BY REV. W. R. WAUGH:

- (6) A fine fossil *Pecten* from the Lower Lias of Lyme Regis. Presented to the Museum.

PAPERS.—The following papers were read and will be found in full in the present volume:—

1. "A few notes on a supposed Ancient British Trackway, discovered on excavating for the new works near the Dorchester Brewery," by Alfred Pope, Esq.
2. "Notes on Bronze" by H. J. Moule, Esq.
3. "On some Roman Pavements and some Intrecci of this County, chiefly with respect to their Meaning (freely illustrated)," by H. Colley March, Esq., M.D.

An address was given by Rev. Sir Talbot Baker on "Facts or Fancies gathered at Rome, of some interest to Dorset folk."

The address contained various matters with regard to buildings in Rome which had some connection with this country, and especially Dorset; amongst others the finding of a jar of English coins. This jar was found in 1884-5 in excavating a mediæval house near the Forum, which was built of portions of an earlier house of The Vestal Virgins, according to Lanciani. The jar was of terra cotta, and contained 835 small silver coins—"pennies"—and one gold coin. The silver coins were all stamped with the names of Anglo Saxon Kings, beginning with Alfred and going on to Athelstan, the founder of Milton Abbey and, perhaps, Athelhampton. He was a great coiner, and very much improved the mints and coinage. He called a Synod at Greatley, between Salisbury and Andover, and decided that there should be certain mints, including Shaftesbury, Wareham, and Dorchester, where coining should be carried on, but not elsewhere, under a penalty of the loss of the right hand. Shaftesbury was the largest of these. Of the coins 390 bore Athelstan's name and his rude image, and several scores were also stamped with the name of the mint—Shaftesbury. The jar bore the inscription in raised letters DOMINO MARINO PAPA, which would refer it to the end of the 10th century, A.D., 970-90. It would seem therefore probable that these coins were paid as Peter's pence by some Dorset landowner of that period.

The meeting broke up at about 4.30 p.m.

THE SECOND INDOOR MEETING was held in the Reading Room of the County Museum on Monday, Feb. 26th, 1900, at noon, the President being in the chair. About 40 members and friends were present.

NEW MEMBERS.—Four were proposed, and out of six balloted for five were elected.

NATIONAL TRUST SUB-COMMITTEE.—The following were appointed to act as a sub-committee of the Club to represent Dorset in connection with "The National Trust for Places of Historic Interest or Natural Beauty":—Lyme, Mr. L. B. Clarence, Axminster; Beaminster, Sir H. Peto, Bart.; Bridport, the Rev. H. S. Solly; Sherborne, Canon Mayo, Longburton; Maiden Newton, Mr. John Brown; Dorchester, Mr. H. J. Moule and Captain J. E. Acland; Portesham, Dr. Colley March and Colonel R. Williams, M.P.; Weymouth, Mr. N. M. Richardson; Portland, Mr. Wallis; Osmington, Colonel Hall; Lulworth, the Rev. W. P. Schuster; Purbeck, Mr. Eustace Bankes; Parkstone, Captain G. R. Elwes; Blandford, Mr. Mansel-Pleydell, Sir Talbot Baker, Bart., the Rev. J. Penny, Tarrant Rushton, and the Rev. T. Perkins, Turnworth; Wimborne, Mr. W. J. Fletcher; Buckland Newton, Rev. Canon H. E. Ravenhill; Shaftesbury, Mr. E. Doran Webb, Salisbury; and Bloxworth, the Rev. O. P. Cambridge, with power to add to their number. Dr. H. Colley March (Portesham, Dorchester), eventually undertook the post of Hon. Secretary of the Sub-Committee.

GENERAL BUSINESS.—The following publications, lately received, were laid on the table and presented by the Club to the Dorset County Museum:—

Proceedings of The Hampshire Field Club, Vol. IV., pt. 1.

Proceedings of the Bristol Natural History Society, N.S., Vol. IX., pt. 1.

The British Association Report for 1899.

EXHIBITS AND NOTES.—

By MR. G. W. FLOYER :

1. Two curious words which were stated in "The Memories of Kegan Paul" to be prevalent in Dorset were "beal," a name for a weasel, and "fay," which latter Mr. Floyer thought might be derived from the French word "fait." Mr. Moule said he had asked Mr. Thomas Hardy about the word and was told that it meant "succeed" and not "do"; as, "That will not fay," "That will not succeed."

By REV. H. WILLIAMS FREEMAN :

2. A thrush's nest built in a pear tree in his garden at Affpuddle. The bird had used in making the nest a number of lengths of string which had been left by the gardener on the walk close by. The loose ends of string now hanging from the nest had been twined round the bough to keep the nest in its place. The bird was very tame, and instead of flying off the nest when approached by Mr. Freeman, pecked at him.

By CAPTAIN G. R. ELWES :

3. A pewter pot, probably dating from the end of the 17th century, having the lid engraved with an unknown coat of arms. This was one of a set of five which he possessed.

By REV. W. R. WAUGH :

4. Two fine fossils, *Pygaster semisulcatus* and *Lima gigantea*, from the Lias and the Wiltshire Chalk respectively. These were presented to the Museum.

By MR. HOGG :

5. A bronze armilla found on a skeleton, probably Roman, during excavations in 1898 in the Albert Road, Dorchester.

PAPERS.—The following papers were then read, which will be found in full in the present volume.

1. "The Influence of Climatic and Geological Changes upon British Flora" by the President.

2. "On Horse Shoeing" by Captain A. Rickards.

3. "Notes on some Early Bibles, illustrated by examples of the second printed and first Authorized English Bible (Thomas Matthew's, 1537), the first issue of the present Authorized Version, 1611, a 13th Century MS. of Isaiah, and others," by the Hon. Secretary.

4. "Notes on Bronze" by H. J. Moule, Esq.

5. "Notes on the Book of Cerne" by E. Doran Webb, Esq. (illustrated by photographs taken from the original in the Cambridge University Library by the Hon. Secretary).

The meeting broke up at about 4.30 p.m.

THE ANNUAL BUSINESS MEETING of the Club was held in the Reading Room of the County Museum, Dorchester, on Tuesday, May 8th, 1900, at noon, the President being in the chair.

It was found on reference that the Rules did not admit of balloting for new members being conducted at this meeting, as it was by Rule 7 confined to the two "Winter" Meetings. The balloting for four members had therefore to be postponed until December.

PRESIDENT'S ADDRESS.—The President's address, which will be found in the present volume, was delivered and a vote of thanks passed to him, on the proposition of Captain ELWES, seconded by Rev. O. P. CAMBRIDGE.

A PAPER "On New and Rare British Spiders" was read by Rev. O. P. Cambridge, and will be found in full in the present volume.

FINANCIAL REPORT OF THE HON. TREASURER.—The Hon. Treasurer (Rev. O. P. Cambridge) presented the usual Balance Sheet and General Statement of the Club's financial position, which will be found later on in the present Volume.

REPORT ON THE ADDITIONS TO THE MUSEUM DURING THE PAST YEAR.—Mr. H. J. MOULE, the Curator of the County Museum, read the following report:—

"This report, relating to the twelve months since the last annual meeting, cannot be written in a very jubilant tone. As regards money, subscriptions are much needed. As regards the Museum collections, for the most part they have not been much increased. Indeed, it has been suggested that a circular asking for Dorset specimens, using the word in a wide sense, might profitably be distributed throughout the county. Such a step was taken, and with some success, by the Committee of the Albert Museum, Exeter, several years ago. In the natural science department we received from the Rev. S. E. V. Filleul and the Rev. H. P. Williams Freeman three noteworthy birds' nests. From the former came a robin's nest built within the old nest of a song-thrush, and a golden-crested wren's nest 18 inches long. This out-of-the-way form was caused by the material somehow slipping through the tree fork in which the birds built, and their perseveringly adding more to it as it sunk away. At last there was a long tassel of moss and other things, with the actual nest at the top. For at last and at length they got the stuff to settle. The third nest is a thrush's. It is built mainly of pieces of soft twine. The Rev. H. P. W. Freeman's gardener left them in the garden one evening. Next morning, when he wanted them for raspberry-bush tying or some such work, behold they were turned into a nest in an apple tree. Another strange but very different specimen comes from the President. It is an elm root, which in its growth has imprisoned several flints. Mr. M. H. Tilley and Mr. J. A. Pope have given us a curious wasp's nest and a very large puff-ball respectively. The Rev. W. R. Waugh, who in former years has repeatedly enriched the collection of Dorset fossils, has again done so. He has given a *Lima gigantea* and a very good *Pecten* from the lower lias. Very few local antiquities have come into our possession of late, save a large collection of worked flints which has been acquired from Mr. Cunnington. These implements, now arranged and labelled, are well worth study. With these flints came

a bit of bronze or brass with EAR engraved on it. To some eyes the letters have a Roman look. Mr. Read, of the British Museum, says, however, that the fragment is the tip of the long handle of a saucepan-like vessel, which seems to have been used as an alms dish in mediæval and later times. To Mr. Cunnington, too, we are indebted for several other relics; for instance, a javelin head. Mr. Ralls has given two quarrel heads. Both these gifts are from Stoke Abbot. The remarkable finds at this place are hitherto very sparingly represented in the County Museum. Only the other day a perfect little rude Celtic urn from Fordington Field was acquired. A very valuable gift has been bestowed by Mrs. Pridham, through Mr. Cunnington. It is a fine ancient urn from Ridgeway. A great prize was given by the Rev. J. G. Brymer—a worked flint of a very rare type indeed. It was found by him, with flint arrow heads, on Hod. Its end is polished finely to a blunt cone. A good authority, the late Lord Northesk, believed this implement to have been used for delicate secondary chipping of flints. It is affirmed that only two like it exist. Mr. Hogg has lent a bronze armlet found at Dorchester. The directors of the Devon and Cornwall Bank have most courteously given to the Museum the tesserae of a handsome fragment of Roman floor found in levelling the site of their new building in South-street. The piece of ornamental floor has been drawn, taken up, and reset by Mr. Feacey, and is now on view. It may here be noted that the Council of the Museum thoroughly canvassed the county respecting the large sum asked for the Olga-road Roman floor found in 1899. The canvass was in vain. Of mediæval and modern Dorset things just gone or going out of use a few have been given or bought. From Mr. Ryall we have a very old leather “bottle,” altered into a nail and gimlet wallet. Mrs. Short presented an antique looking “brandis” or kettle stand, such as are still sparingly used in hearth fires. She uses one herself. The Rev. Canon Bankes has given a very good brass or latten spoon, of the “Apostle” type, found at Studland. The figure seems to be a female saint. This spoon is described and admirably figured in the “Purbeck Papers.” Mr. Carter presented a curious leaden ounce weight, and Mr. Gould a large old key, both found here. Our friend Mr. T. B. Groves has lately given a double-barrelled pocket pistol, with flint lock. Its barrels are one over the other, and so of course are the priming pans. There is an ingenious arrangement to prevent both primings acting at once. Ingenious, too, is the triple screw fastening of a pair of old iron handcuffs from Wimborne, given lately by Mr. Hogg. A curious gauze and tinsel lady’s dress was presented by Mr. Jacob. An old oak cradle from Corfe has been lent by Mr. A. Bankes. It is specially interesting from its bearing not only the date, 1674, but also the name of its occupant, John Uppill. We are indebted to the Rev. C. R. Baskett for an interesting collection of old-world crockery and glass, 26 pieces in all, gleaned by him from Dorset cottages. Through Captain Acland’s kindness we have acquired a flail and a “kevin rake,” used in connection with flail-threshing. Another recently obsolete implement in use about farms is greatly desired by the Museum. This is a “plump” or upright churn. Mrs. Short, who has often worked one, has most kindly tried to supply

us with a specimen, but so far in vain. There are two sorts. One is wooden, of cooper's work. This is the kind which is chiefly desired. The other is of earthenware, and smaller. Of specimens not connected with Dorset the following may be mentioned :—From Dr. Ensor, a South African agate and rich gold quartz; from Mr. Jukes Browne, F.G.S., specimens of Dartmoor granite; from Mr. Moore, a very ingenious guinea weigher; from Captain Rickards, a fine bronze crock fished out of the sea off Lowestoft; from Miss Coombs, a whip-snake set up by Ward, the noted taxidermist; from Mr. Slater, a fine specimen of *Clypeaster Egyptiacus*. The library has been a good deal enriched. Such books, &c., as relate to Dorset will first be named. We are unspeakably indebted to the Rev. W. Miles Barnes for his continued skill, labour, and outlay in carrying forward the photographic survey of Dorset. Already six large volumes, admirably arranged by him, are in the library, and six more are in hand. All the photographs are platinotype. From the same gentleman we have received a drawing of the old Steepleton Rectory. Mr. A. C. Higgs has given two photographs of the Olga-road Roman floor. A framed photograph of Colonel Cox, first Chief Constable of Dorset, was given by Mrs. Cox. Our constant friends, Mr. Sime and Mr. Stone, have not failed us. The latter has supplied a serious want by giving a copy of Pouncy's "Dorset photographically Illustrated." He also has given several other books connected with the county—for instance, some volumes of the Sherborne "Weekly Entertainer," and "Abbot's Dorsetshire." He has also given a framed copy of Buckler's large engraving of Sherborne Minster. Mr. Sime has added several volumes to the Museum Dorset collection. Among them are "The Dorchester Guide, or house that Jack built," a political squib, with caricatures; Cook's "Dorsetshire," and "Observations on Sea-bathing," containing also a short history of Weymouth. Last, but not least, the Dorset Field Club has presented Vols. XIX. and XX. of its Proceedings. Of books not relating to Dorset the Club has also given several. Among them are Vol. ix., pt. 1, of the Journal of the R.S.A. of Ireland; and the last volume of the Brit. Association report. From Sir R. Glyn we have received his valuable yearly gift of the publications of the Egypt Exploration Fund, including pt. iii. of the "Excavations at Deir el Bahari," and a volume on Denderah. Captain Acland has given several books, including Turner's "History of the Anglo-Saxons." From the Trustees of the British Museum have come two books, namely, "Facsimiles of Autographs," pt. iv., and "Guide to the Exhibition Galleries." The Rev. E. E. Cunningham and Mr. Hansford have given two small but interesting books, "The Modern Chess-player" and "An Account of Ancient Musical Instruments." The latter is illustrated with plates of specimens from the almost matchless collection of the Rev. F. Galpin, a native of Dorchester. Ansted's "Ancient World" has been given by Lient.-Colonel Marriott Smith. Lowndes' "Bibliographer's Manual," 6 vols., has come from Mr. Stone. On the whole the library has done pretty well during the last twelve months. Would that the same could be said of the local collections in the Museum itself. Past doubt a number of relics of various kinds are found every year within the county. But of these very

few indeed of any value are either given, lent, or even offered for sale to the County Museum. Buying, it is true, is not easily accomplished. The income of the Museum has decreased. During last year more subscribers were lost than gained. The offer made by Mr. Dixon-Galpin to double his subscription if 20 other subscribers will do the same has not been very heartily met. But this report must not become a mere jeremiad. Let it end with a few lines about the work of the twelve months. It was more of a task than anyone not having tried such labour would believe to arrange and label the lately arrived Cunnington collection of worked flints and other relics. The flints alone are nearly 800 in number. Another work most important for the Museum has been achieved, at least one branch of it. Locally-found coins were for some years partly arranged, partly shown in order of arrival, in Case xix. Here they were on the whole well seen; but from the steepness of the stand on which they were placed they were liable to be dislodged. This caused confusion and even loss. So they have been all moved to table Case xix. c, partly with the old labels, partly with rewritten ones. It is intended to use xix. for mediæval and post-mediæval relics. These are now being moved from xiii. c. Moving involves re-arranging in some cases. For instance, the group of post-Roman keys has been set up on a card carefully labelled. The same has been done with the mediæval and more recent small ornaments, such as rings. These two tasks sound trifling. In reality they mean an infinity of time and contriving. But the labour is, it is hoped, well bestowed. When to these keys and rings are added such other post-Roman relics as Case xix. can receive, the Roman and pre-Roman general collections can be expanded in arrangement by spreading into Case xiii. c. This is much needed as regards the existing collection. But it is hoped, at all events earnestly wished, that fresh arrivals of Dorset relics may bring more and very welcome work to your humble servant, the Curator."

SUMMER FIELD MEETINGS.—Invitations to tea in connection with a meeting which it was proposed to hold at Chalbury, Poxwell, &c., were received from Mrs. Baxendale, at Moreton House, and from Rev. W. S. Cope, of Chaldon, of which the former was accepted.

Other meetings proposed were the neighbourhoods of Milton Abbey, Breamore, Frampton Roman Pavement, Exeter, Isle of Wight, Winchester, and Bath, the last four being for two days each. On the votes being taken the result was as follows:—Milton Abbey, 17; Glanvilles Wootton, 14; Winchester, 11; Poxwell, 10; Exeter, 8; Breamore, 8. The first four were therefore chosen, but the Milton Abbey meeting had afterwards to be given up.

ELECTION OF OFFICERS.—The President and Secretary were unanimously re-elected, on the proposal of Mr. W. COLFOX and Rev. J. C. MANSEL-PLEYDELL, seconded respectively by Mr. G. W. FLOYER and the PRESIDENT.

The TREASURER (Rev. O. P. Cambridge) in resigning his office which he had held for 18 years, proposed as his successor Captain G. R. Elwes. This was seconded by the PRESIDENT and unanimously passed. The President expressed the regret felt by the members of the Club at losing the Rev. O. P. Cambridge as Treasurer

after so many years of valuable service, and offered their thanks to him for all that he had done for them.

VICE-PRESIDENTS.—According to Rule 3 the President nominated the Lord Eustace Cecil, F.R.G.S., Mr. W. H. Hudleston, M.A., F.R.S., F.L.S., F.G.S., and Mr. Vaughan Cornish, M.Sc., F.C.S., F.R.G.S., to be Vice-Presidents, in addition to the two *ex-officio* Vice-Presidents—viz., the Hon. Secretary and Treasurer.

GENERAL BUSINESS.—The following alteration in the Rules was passed at the instance of the Hon. Secretary :—

Rule 15. Instead of “and approved by the Hon. Secretary” to insert “the Hon. Secretary and approved by him or the Executive.”

The Proceedings of the Somerset Archaeological Society, lately received, was laid on the table and presented by the Club to the Museum Library.

A Report on the work of the Corresponding Societies Committee at the Dover (1899) Meeting of the British Association was communicated by the Club's delegate, Mr. Vaughan Cornish. The chief matter dealt with was coast erosion. In consequence of a suggestion made by Mr. Cornish at Bristol in 1898 permission had been obtained to make use of the Coastguards for procuring regular reports from time to time as to coast erosion, and memoranda of the points on which information was desired. It was hoped that this scheme might greatly increase the reliable data on the subject. Another matter was a discussion on the best way of making the meetings of the Committee more generally useful to the Corresponding Societies, and it was hoped that arrangements might be carried out at Bradford and at subsequent meetings of the British Association which would have that effect.

EXHIBITS AND NOTES.—

BY THE PRESIDENT:

(1) Portions of two cores of coral rag rock from the coal borings at Dover and Branbourne, distant a few miles westward, at a depth respectively of 809 and 990 feet, similar to the iron-shot ferruginous beds at Abbotsbury, and on the same geological horizon. Although so near to each other, the coal is present at Dover and absent at Branbourne, owing to an anticlinal, which brings the trias in conjunction with a fine argillaceous, unfossiliferous sandstone, considered to be Devonian (?), and consequently below the coal measures, from which it may be inferred that the western boundary of this coal field does not extend as far south-west as Branbourne. It will be observed that the oolitic grains of oxide of iron are cemented together by the sandy material of the rock.

BY CAPTAIN ARTHUR RICKARDS:

(2) A slice cut from the meteorite No. 22 in the British Museum, South Kensington, and marked “Arva (Salanicza) Hungary, 1844,” as the date and place of find. This slice is 44 grains; the entire meteorite was 9,010·7 grains, or rather more than 1½lb.

(3) Two balls of Iron Pyrites (not infrequently mistaken for meteoric stones) from a chalk formation.

BY DR. H. COLLEY MARCH :

(4) Dr. Colley March exhibited some stone implements which, as far as he knew, were unrepresented in any of the Museums. He went into Pembrokeshire last summer in order to examine the evidence of glaciation there, for the glaciation of South Wales had a strong bearing upon any supposed glaciation of Dorset. Glacial striæ had been discovered by Professor Hicks on the rocks at St. David's Head. They ran from the north-west to the south-east, and it was thought that the ice sheet that caused them came from Ireland, and at the point of transit was at least a thousand feet thick. Dr. March was able to expose a mass of igneous rock, and found striations pointing in the direction of Preselly Mountain, and proving the occurrence of a secondary local glaciation. He was at first disappointed on finding only a few flint implements, when he had expected to come home laden with them. It should be remembered, however, that no flint was procurable in that region except a little in the drift. But after a while he began to find implements made of the igneous rocks of Pembrokeshire. Glacial striæ can be detected on some of the unflaked surfaces, but none elsewhere. This is evidence that the implements, though they are very rude, are neolithic. All this in his mind had reference to a glaciation of Dorset. He had been told by objectors to his theory that in Dorset there were no scratched stones, no grooved stones, and no erratics. Now all these had been found. If there were any flint collectors present he asked them to look out for implements of green-sand chert, because they might have some bearing upon the question of the glaciation. In his neighbourhood there were hill fortresses with pit dwellings, and some things of great interest had been discovered which should be brought before the club next winter.

BY MR. W. COLFOX :

(5) Papal seal of Clement V. (Bernard de Goth), who ruled from 1305 to 1314. He removed the Papal chair to Avignon and suppressed the Order of the Templars. For an account of him see Milman's "History of Latin Christianity," book xii., chap. i.-v. Dante (*Inferno* XIX., 82-84) places him among the simoniacal, and calls him the "lawless shepherd."

Inscriptions—CLEMENS : PP (= PAPA) : V.

The other side reads—SPA SPE (SANCTUS PAULVS SANCTUS PETRVS) above their traditional portraits.

This seal was found about 1866 in an ironmonger's shop at Bridport, and is now in the possession of Mr. James Ralls, Bridport.

BY REV. H. S. SOLLY :

(6) The following letter, sent by Mr. Solly to the Secretary, was read :—

"I write to you to convey a small piece of information which I have just received respecting the octagon on the summit of Eggardon Hill. Mr. S. Wrixon, of King's Farm, whose father was born there in 1810, tells me that his father told him that the octagonal ditch and bank were made to protect a plantation of young trees. This is intrinsically probable, and from one point of view the lines

along which the trees were planted are plainly visible, so that the mystery may be considered solved. A continuation of the story may or may not be true—viz., that the plantation was attempted by a noted smuggler who then occupied Eggardon Farm, and who thought a sea mark on the top of the hill would be useful to him. The Government, it is said, destroyed the plantation. The high winds, however, would be quite sufficient to account for the failure of the trees to grow; and the smuggling story, like so many others of the same sort, may be a mere legend.”

See Proceedings XX., pp. xxxviii., 174.

BY COLONEL J. P. CAMBRIDGE :

- (7) Two curious fungoid growths on ash from trees cut down at Bloxworth.

BY CAPTAIN G. R. ELWES :

- (8) Rubbings of ancient stone crosses.

BY REV. W. R. WAUGH :

- (9) Fossil wood from Lyme Regis.

BY MR. T. B. GROVES :

- (10) Portions of two letters to the Hon. Secretary from Mr. Groves in regard to the paper by the former, entitled “Notes on the Effect of the Gale of Feb. 11-13, 1899, on the Beach to the East of Weymouth,” were read as follows :—

See Proceedings, Vol. XX., p. 179.

“April 15th, 1900.

“I have been reading in the Field Club Book your useful account of the injury to the Preston Beach by the storm of Feb. 13th, 1899. You appear to be in doubt if a similar accident had occurred in recent times. I can enlighten you upon the point. At the mature age of four years I was sent to a school at Osmington kept by a relative of my father, and remained there four years. During my stay there the pupils were amazed to hear from the music master that he had had to cross the Beach from Weymouth in order to get to his destination, for the sea had broken over it and washed a large portion into the road. That must have been about the year 1835. The shingle then deposited remained there till the G.W.R. thought proper to complete their line to Dorchester, when it was used as ballast. For many years afterwards shallow ponds showed in winter (and perhaps it is so now) where the deposit had been.

“The beach at that time was much higher than it is at present, as the shifting process was of a dual character, the movement towards Weymouth being counteracted by a reverse movement towards Preston when the S.E. wind (which gave us our heaviest seas) blew.”

(Extract from letter of April 23rd, 1900).

“The present road was, I have no doubt, made subsequently to the storm of 1835 (?), but when or how I do not know. I remember it was once proposed

to carry the road diagonally across Lodmoor, so avoiding the beach, but the cost was prohibitive."

A paper by Mr. Groves on "The Erosion of the Coast near Weymouth by the Action of the Sea" will be found in Proceedings, Vol. X., p. 180.

NEW MEMBERS.—Six were proposed.

The meeting ended at about 4.45 p.m.

GLANVILLES WOOTTON MEETING.—The first Field Meeting of the Club was held at Dungeon Camp and Glanvilles Wootton, at the invitation of the owner, Mr. C. W. Dale, on Friday, June 8th, 1900, about 80 members and friends being present.

The main body started from Dorchester in breaks on the arrival of the 10.7 S.W. down train, other breaks coming from Blandford, and drove by the old Sherborne Road to Dungeon Camp, on which a paper was read by Mr. E. Cunnington. This will be found in full later on in the present volume.

Dr. MARCH mentioned that portions of the Roman tiles alluded to in the paper might still be picked up in the camp, and showed some which he had just found.

Mr. C. W. DALE said that 100 years ago the camp was covered with brushwood whereas it was now ploughed. It was said that in one spot there was a well filled with coins. On the ground being cleared about 1790 by the late Mr. Foy, of Castle Hill, human bones, antique pickaxes, sword blades, Roman coins, and other remains were dug up.

Captain ELWES, whom the Hon. Secretary introduced to the Club as their new Hon. Treasurer and Vice-President, and who was at his request acting as President, suggested that the derivation of Dungeon was from the Norman donjon, a keep, and Dunset from *sedes domini*.

Thanks having been offered to Mr. Holford by the HON. SECRETARY for his permission to visit the camp, the party returned to the road and drove to "Round Chimneys," the property of Mr. C. W. Dale, now used as a farmhouse. A paper was read by Mr. DALE, which will be found in the present volume incorporated with one upon his own residence. On the way the breaks were stopped that two fine oaks called Gog and Magog might be admired.

After seeing "Round Chimneys" the members drove back to Glanvilles Wootton Church, on which a paper was read by the Rev. Canon Mayo. This will also be found in the present volume printed in full. The party then walked to the Manor House, on which Mr. Dale read his paper, and afterwards inspected his fine entomological collections and the other curiosities to which he had alluded, and, after tea on the lawn and thanks to their host, drove back to Dorchester *via* Minterne and Cerne to catch the 7.0 p.m. train.

NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY.—It was decided on the application of the Secretary of the Trust that the Club should subscribe one guinea a year.

NEW MEMBERS.—One was proposed.

WINCHESTER MEETING.—The second Field Meeting was held at Winchester on Thursday and Friday, July 26th and 27th, 1900, and was attended by about 30 members and friends. The President was unable to be present, but three of the Vice-Presidents—viz., Mr. Vaughan Cornish, the Hon. Secretary, and Hon. Treasurer—took his place during different parts of the meeting.

The party reached Winchester at 12.48, and made the George Hotel their head-quarters. On assembling at the West Gate at 2.0 p.m they were conducted by Mr. Jacob over some of the most interesting portions of the town. The West Gate is the last remaining one of the four city gates. It had been cleared from accumulations of rubbish and was now in much the same condition as when used as a prison in Queen Mary's time. The room above it is used as a Museum by the Corporation, and contains amongst many other interesting articles standard weights and measures of the time of Henry VII. and Elizabeth, a leaden box which when found in 1823 contained 6,000 silver coins of William the Conqueror, &c. The County Hall, a modern structure, and the Great Hall of the Norman Castle were next visited. The architecture of the latter is, however, chiefly Early English. On the wall hangs "King Arthur's Round Table," inscribed with the names of himself and his 24 Knights. It was first mentioned as hanging in its present position by John Harding early in the 15th century, and the earliest account of it which we have is of an order by the builder of the palace about the time of Henry III. to construct a wheel of fortune. Its origin, however, seems to be uncertain. The Parliaments met in this Hall for nearly 400 years; and there is an arrangement of a hole in the western wall by means of which the King could hear their proceedings in his private apartment.

A subterranean passage runs beneath the castle, and was entered by some of the party, who afterwards visited one or two old houses and the City Cross on the way to the College, which they reached at four o'clock. Here they were received by the Headmaster, Dr. Fearon, who, assisted by the Bursar and others, showed them the various buildings and gave some account of the College and its institutions. It was founded by William of Wykeham in 1382, but there had existed for a long period an earlier school in the same locality, under the Monks of St. Swithun's Priory, at which William of Wykeham and, it is said, the Kings Ethelwolf and Alfred attended. The College was founded for 120 persons, and there are now 70 scholars, besides between 300 and 400 not on the foundation, called "Commoners." The cellar was first inspected, together with the passage outside, containing the well-known picture of the "Trusty Servant" and the lines describing his qualities. This painting was probably originally made in 1599, but the present one is of the period of Queen Anne.

The Hall was visited and also some of the rooms near, in one of which was some tapestry, presented by Archbishop Warham, and some curious panels painted with Spanish figure subjects, dating from the occasion when Philip and Mary visited the College in July, 1553. Some of the tiles are Flemish, of the 15th century. The chapel, finished in 1390, and added to in the next century, has a fine roof and east window, but the old glass has nearly all been replaced by

modern. The roof is fan-shaped and composed of thin layers of wood hung on to a frame-work above, an invention of William of Wykeham. Owing to the increase in the numbers of the school the Chantry Chapel, a 15th century building, situated in the cloisters, and hitherto used as a library, has recently been converted into a secondary chapel for the use of about 100 of the younger boys, the library being removed to the scriptorium above it. The school, erected in 1687, and till 1886 used for its original purpose, still bears the painting with the inscription "AUT DISCE—AUT DISCEDE—MANET SORS TERTIA CÆDI," though its present use is a concert room! After a slight inspection of "Meads," the College Museum, and other buildings, the party were kindly entertained to tea by Dr. and Mrs. Fearon.

They then proceeded to Wolvesey Castle close by, an ancient Saxon palace, where Mr. N. Nisbett gave an address, of which the following is the substance:—

From very early times this Castle appears to have been a stronghold of importance, but only a few portions of the walls and keep now remain above ground. It was the palace of some of the Saxon Kings, but in later times became the residence or headquarters of the Bishops of Winchester, and has belonged to them ever since. It played an important part in the troublous times of Stephen, and was much strengthened by Bishop Henry de Blois for military purposes. Much of the building appears to have been done with materials taken from the palace which William the Conqueror built for himself in the centre of the town, near the market cross. A portion of this palace was burnt, and when De Blois became Bishop he claimed the palace and used the fragments for building and strengthening Wolvesey. In several of the walls round pillars, evidently taken from another building, have been built in and used as bonding stones. These pillars and other stones are evidently of the Norman period. The castle at the other side of the town was held for Queen Matilda in the struggle between her and Stephen, in whose time anarchy was rampant. The foundations of this castle of De Blois have been traced by Mr. Nisbett and others so as to enable an accurate ground plan to be prepared showing its dimensions and design. The stone generally used in the building appears, like that used in the construction of the Cathedral, to have been obtained from the Isle of Wight. The castle withstood a severe siege in the time of Stephen's wars, but was dismantled by Henry II. and Henry III., and destroyed by Cromwell in 1646. The Norman work is plainly visible in places, and also one of the earliest uses of the pointed arch.

On the way back to the Hotel a short visit was made to the Guildhall Museum, where the members of the Club were received by the Mayor (Mr. J. Marks), and shown the very fine and noted Rosehill collection of prehistoric stone implements and the many other curious and interesting contents.

After dinner, at which several local guests were present, an evening meeting was held at the Hotel, and a most interesting address on "Fragments from the History of Winchester" was given by Mr. W. T. WARREN, illustrated by

a large number of photographs, and some maps and coins. Mr. Warren referred to the earthwork on St. Catherine's Hill, and drew a vivid picture of the time when it was used for defensive purposes; also to other ancient British local remains, such as six well-granaries, which had been found near the S.W.R. Station. He then spoke of Roman Winchester, alluding especially to the Walls, and to the pavements, coins, and pottery, all of Roman origin, which have been discovered. He ended with an account of the discovery of 6,000 Norman coins in a lead box at Beaufort, in the parish of Cheriton, the box being preserved in the West Gate Museum. The HON. SECRETARY, as Chairman, offered the thanks of the Club to Mr. Warren for his address, and to the other friends who had so kindly helped them.

SECOND DAY.—Friday, July 27th. The party drove at 9.0 a.m. to Headbourne Worthy Church, where the Rector acted as guide. The church contains Saxon work, including a Saxon arch at the west end, other portions being of the 13th century, which is also the date of the font. There are remains of frescoes. The drive was then continued to St. Cross Hospital, about a mile out of Winchester, where the party were met by Mr. Nisbett, who acted as guide through the buildings. St. Cross was founded by Henry de Blois in 1136, A.D., and was greatly extended and enlarged by Cardinal Beaufort in 1445. Thirteen poor brethren were originally provided for, but this number has now been increased. There is also a dole of bread and beer to any wayfarer who applies for it, and certain other aids to the poor. The church is an interesting archæological study from the succession of styles which it contains—Norman, Transition, Early English, and Decorated. The mouldings, dogtooth, zig-zag, &c., are very beautiful and in good preservation. A triple arch is a striking feature in the exterior, and was probably caused by the insertion of a doorway for some purpose, the nave wall being partly cut away. The arches are elaborately decorated with zig-zag mouldings. The Hall and other buildings were also visited. In the Hall is some Early English stained glass, and an early German triptych. Captain ELWES having thanked Mr. Nisbett for his valuable help, the party drove back to the Hotel, whence, after luncheon, they proceeded to the Cathedral at 1.30 p.m. Here the Dean kindly acted as cicerone, the following being the substance of the information he imparted:—

A Saxon church no doubt stood on the present site of the Cathedral, and gave way to a larger church, consecrated in A.D. 900. A Norman Minster was subsequently built, and the pillars of the same are portions of this Cathedral. The present west front was partly built by Bishop Wykeham, the founder of the college, although commenced by Bishop Edyndon. A platform is provided over the entrance, from which the Bishops used to deliver their blessing. Near the entrance and under the gallery on the north-west side of the interior is a very ancient grill, the ironwork of which shows no rivets or bolts. It was formerly placed near the choir steps. The large Norman pillars of the nave have been recased, but their massive proportions, combined with the elegance of later times, form an exceptional architectural beauty—a stately beauty which wins the admiration

of all. Considerable repairing has been done to the timber work of the roof, but the original timber cut by Bishop Walkelin from Hempage Wood more than 800 years ago still exists, and the roof might now be deemed safe for many years to come. Just inside the entrance are two bronze figures, one of James I. and the other of Charles I. Those were sold at the time of the Commonwealth to a gentleman in the Isle of Wight, who buried them in his garden "until the times did alter." They were then re-purchased and placed in their present position. One of the chief objects in the nave, and one of the most beautiful in the Cathedral, is the tomb of William of Wykeham. It is situated on the spot which, as a scholar, he used to frequent for worship. The figure on the tomb is of white alabaster, and represents the Bishop in his robes. Besides doing much for the improvement of the Cathedral and founding Winchester College, he founded New College, Oxford, and was twice Lord Chancellor of England. On the other side of the nave is a dark marble highly decorated carved font, supposed to be of the eleventh century. It will be remembered that the Norman kings visited the Cathedral once a year in state. The massive Norman work of the north transept was inspected and a visit paid to the crypt, in which there is an ancient British well. From this well is drawn the water for baptisms at the present time. The well is immediately below the high altar of the Cathedral. The building is very rich in chantries and tombs, some of them being of exquisite workmanship, and all of a most interesting character. They were duly visited and their history and most beautiful features described by the Dean, who also drew attention to the chair used by Queen Mary on her marriage with Philip of Spain. The chair is in Bishop Langton's chantry, the screen of which, unlike the others, is of carved woodwork. A visit was paid to the lady chapel, with its three magnificent chancel windows, after which attention was drawn to the so-called tomb of Rufus in the choir, but which is believed to be the tomb of Henry de Blois, which formerly stood in front of the chancel rails. The body of Rufus was interred beneath the lantern tower, which fell soon afterwards, owing, it is said, to the supposed desecration of the place thereby. The remains of some of the kings and prelates have been collected at various times, and these have now been placed in highly-decorated mortuary chests erected above the choir screen. Much attention was bestowed on the reredos erected by Beaufort in the first half of the 15th century. It has, however, undergone many alterations since that time, and its thorough restoration has now been recently completed. The whole of the work is of white stone, of delicate workmanship, and in the Perpendicular style. The light appearance of the stonework is intensified by the dark oak-work of the carved choir screen and benches below. It was in front of the high altar that de Blois was interred. The library, with its fine collection of ancient manuscripts, many being in an excellent state of preservation, was next visited. It contains over 3,000 volumes, most of which were given by Bishop Morley. The most valuable MSS. is the Vulgate (12th century) in three volumes, Imperial folio, with splendid illuminations, and Bede's History (10th century). There is also a MS. of the 12th century, the life of King Edward the Confessor, and a charter of

Æthelwulf's (854). This bears the signatures of Æthelwulf, Alfred (when a little boy), and their tutor St. Swithun, the patron saint of Winchester.

The thanks of the Club having been offered by the HON. TREASURER, the party returned to the Hotel in time to catch the 4.4 train.

NEW MEMBERS.—Two were proposed.

POXWELL AND MORETON MEETING.—This meeting, the third and last of the Field Meetings, was held on Monday, September 10th, 1900, and was attended by about 100 members and friends. The party met at Weymouth Station on the arrival of the 10.30 S.W.R. train and drove to Chalbury Camp, a small earthwork near Preston, where a paper was read by Mr. H. J. MOULE, which will be found in the present volume. During the discussion Mr. E. CUNNINGTON read the following short note on the subject:—

Owing to its natural cone shape this hill was easily converted into a strong position by taking all the loose earth off the top of the hill and spreading it all round the sides in the construction of a well-made ditch or vallum, thus reducing the apex down to the Portland rock, which appears untouched. In 1882 several excavations were made here both in the interior of the camp and the surrounding foss. Nothing, however, was found but specimens of British pottery, and these wherever the ground was opened, and stone implements rather plentiful made of the Portland chert. One of the barrows in this camp was opened by the late Mr. Warne, who found fragments of two British urns in it.

Lord Eustace Cecil acted as President, in the absence of Mr. Mansel-Pleydell through ill-health, during the first part of the meeting, but, being unable to remain during the whole day, his place was taken at Poxwell and subsequently by Mr. W. H. Hudleston.

The next place visited was the Roman pavement at Preston, situated about a quarter of a mile off the high road, and last seen by the Club on August 16, 1888. (Proceedings X., 28.) The pavement was in very fair condition, being protected from the elements by a building over it, and from human depredators by a wall of fine wire netting. A paper upon it was read by Dr. H. COLLEY MARCH, and will be found in full later in this volume.

A good plan of the pavement was exhibited.

At Poxwell circle, three miles further on, a paper was read by Rev. W. M. BARNES, which will be found later on in this volume. In it he criticised and questioned Mr. Cunnington's views as to the Phœnicians in England as set forth in his paper. (Proceedings XX., 113.) Some discussion followed, Mr. CUNNINGTON maintaining his views.

Some of the geologists inspected on the west side of the ridge the extensive deposits of fibrous carbonate of lime, resembling fossil wood, and locally called "beef." A real fossil tree in a quarry near the road also caused much interest.

Poxwell Manor House was next visited, where the party were kindly received by the tenant, Mr. Kent. The house, with its picturesque gateway and gate-

house, was duly inspected, and the following notes read by Rev. W. M. BARNES :—

Hutchins writes thus of Poxwell: "The Manor and farm, consisting only of the ancient seat of the Hennings and a few cottages, is situated in a vale about a mile and a-half S.W. from Warmwell. The ancient vill stood a little N.E. from the church. It seems to have received its adjunct to its name from the well or spring which rises in the middle of the village." According to Domesday it belonged originally to the Abbey of Cerne. The family of Pokeswell probably held it of the Abbot of Cerne. The pedigree of the Hennings of Pokeswell, who were its later possessors, is given in Hutchins. The house and property now belongs to the Cambridges. The house was built by one member of the Henning family, and it was new when Coker wrote his Survey of Dorset, for he writes thus of it—"Nowe it is the dwelling of the Hennings whose faire newe house much commends it." When was it built? The only edition I have yet met with of Coker's Survey of Dorset was printed in 1732. If this is the first edition it must have been published long after Coker's death, for from internal evidence it appears that Coker was contemporary with Sir John Williams, of Herringston, and with his grandson, John, who succeeded him. Sir John Williams was born in 1545 and died in 1617, when John Williams succeeded him. John died in 1632. If we put the writing of Coker's book a little later than this we shall arrive at about the date which is cut over the porter's lodge, 1634, to which date the architecture answers. Externally the house (but for the wood-framed windows in the gable) is a good and well-preserved specimen of Jacobean or Caroline domestic architecture, for the difference in style between the two is not marked, and if it was furnished with lawns and flower beds after the fashion of the time, and the old stone windows were replaced in the gable, it would not present a very different appearance to what it did when old Coker wrote about it, except that age has toned down the crudeness of its freshly cut stone and lent that charm to it which antiquity alone can give. Of course the old house has its ghost—an old woman who sits knitting in the porter's lodge, but as she has not been seen for many years, it is believed that the ghost has been laid, so she is no longer a terror to superstitious servant-maids. As to the things to be noticed, I would call your attention to the very picturesque porter's lodge. The wall on each side of the lodge has been lowered, but the characteristic coping has been replaced, and for two or three feet on each side of the lodge the wall is untouched. Three ancient tiles found in pulling down the old wall will be seen built in over the doorway between this lawn and the garden. You will pass through the porch with its niches recessed in the walls, and which are characteristic of the date, into the ancient passage with a stone arch opening into the hall on the right, with the buttery hatch opposite. Some of the old wainscoting still remains in the hall, together with the very interesting hall table, which seems to be of the same age as the house. The pedestals which support the massive board are original. These are of oak. Is the top of elm? or of what wood is it? A few of the original balusters remain at the top of the staircase, and the original

fireplace is to be seen in the drawing-room. There is no fireplace in the hall; possibly this was heated by an open brazier of charcoal, as was the hall of St. John's College, Cambridge, till recently.

On reaching Moreton Church, after a drive of six miles, the Rector, Rev. VERNON A. BUSBRIDGE, said a few words about the church, though he admitted that there was nothing really old in it.

The parish itself was interesting. They had a complete list of Rectors from 1298 down to himself. The old registers began in 1565 and continued to 1631; but they were burnt in the great fire at the Rectory in 1740. Their present registers began in 1741. The church had had two dedications. The first was to St. Magnus the Martyr, and he still received letters thus addressed. The second dedication was to St. Nicholas of Myra, in Syria. Originally the church consisted of a chancel—not an apse, as now—nave, south aisle, and tower. Three bells, with the tower, fell down in 1603. Mr. Frampton, the squire of the time, pulled the old church down in 1777, and in the same year built the present one, which was opened on December 21st. The north aisle was added in 1840 and the porch in 1847. There were only two bells in the tower. Originally there were five, but three were taken down on account of the ringers being nearly always intoxicated, and a clock was substituted for them. The clock had not been going for some time, and he had ordered a new one, which would be dedicated by the Bishop early in November. In the chapel was a brass dated 1523. The chapel, which was dedicated to the Holy Trinity, was pulled down and rebuilt and converted into a family pew with a comfortable fireplace. The fireplace had long been unused, and the church was now very agreeably warmed by the new heating apparatus. There seemed always to have been only one churchwarden for the parish, who signed himself “sole churchwarden.” His predecessor (the Rev. Charlton Frampton) was repeatedly asked to have two, but did not like to break through the old rule. The same request had been made to himself, but hitherto he had evaded it.

An adjournment was then made to Moreton House close by, where the Club had been kindly invited to tea by Mrs. Baxendale. After tea on the lawn the members walked through the house and grounds and inspected the pictures and other objects of interest. Amongst them are landscapes by G. Poussin and Sebastian Ricci, portraits by Holbein, including one of Lady Jane Grey, and a painting representing Jacob and Esau, by Gherardo della Notte. There are also some beautiful and curious antique dresses and other garments, which were formerly lent to the Dorset County Museum by the late Mr. R. Fetherstonhaugh-Frampton, and china, books, &c.; and in one of the walls of the extensive and picturesque gardens is fixed a piece of carved marble from the Castle of St. Angelo at Rome.

Thanks having been offered to Mrs. Baxendale for her hospitality, the party left at about 5.30 for Dorchester and Weymouth.

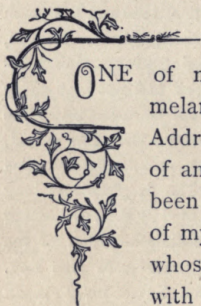
NEW MEMBERS.—Four were proposed.

The meeting which it had been proposed to hold this summer at Milton Abbey and in its neighbourhood had unfortunately to be given up.



Anniversary Address of the President.

(Read May 8th, 1900.)



ONE of my duties as President, and an extremely melancholy one, is to refer in this Anniversary Address to the removal by death of a member, or of an eminent scientist, with whom our Club has been in touch. The first to refer to is that of one of my oldest and dearest friends, Sir Talbot Baker, whose death took place on the 7th of last month, with awful suddenness. His loss is keenly felt, not only by the members, but the county at large. His amiable character and genial bearing secured an attached affection from everyone who came in contact with him. His connection with the Dorset Field Club dates from its commencement. From the first he took the liveliest interest in its welfare, and he rarely absented himself from either the in-door or the field meetings. Only a few days before his lamented death he intimated to the Honorary Secretary his intention to attend this our meeting to-day. Alas! It has been otherwise ordained. His cultured tastes, especially for archæology, enabled him to take a prominent part in the papers and discussions upon the antiquities and architectural treasures of the county. The volumes of our "Proceedings" contain several contributions from his pen. His hospitable reception of the members at Ranston a

year and a-half ago must be fresh in our memories, when Professor Boyd Dawkins delivered his brilliant address from the summit of Hod Hill, which was illustrated by the ramparts and earthworks of that prehistoric encampment. I feel sure that I am only re-echoing the sincerest words of sympathy from the heart of every member by conveying theirs and mine to Lady Baker and to her son and daughters on this their deep and sad bereavement.

Another member of the Field Club, also one of my dearest and valued friends, has just now been added to the death-roll, General Lane Fox Pitt-Rivers, F.R.S., D.C.L., known at the earlier part of his life, in the scientific world, as Colonel Lane Fox; he passed away at his country seat on Friday last, after a long and painful illness. He inherited the large and widely distributed Rushmore estates of Dorsetshire and Wiltshire, on the death of Horace, Lord Rivers, in 1880. His antiquarian instincts, aided by a scientific education, led him from his earliest career to apply himself to the unravelling of some of the problems of prehistoric history in connection with man. Through life-long labour and a natural deductive genius, he has done as much as any archæologist in tracing the various ethnic changes which have occurred in this part of the country. Before General Pitt-Rivers came to reside at Rushmore he had amassed a large and valuable prehistoric and mediæval collection, which he generously gave to the University of Oxford, now deposited in the Ashmolean Museum, and known as "The Pitt-Rivers Collection." This collection, valuable as it is, is thrown into the shade by his local Museum at Farnham, in which are deposited the relics found at Rushmore and the neighbourhood, and several series of industrial, metallurgical, agricultural, and fictile objects from a wider area, showing in a most instructive manner an evolution or variation of forms by gradual development from a primitive to an improved culture. The central tables of the Farnham Museum are covered with 118 models of the earthworks examined by General Pitt-Rivers, carved in blocks of mahogany from contoured plans, made and surveyed by himself. The walls are

lined with diagrams illustrating the silting up of the ditches far better than by any written description. The history of the occupation of the district, during the period of silting, may be attained by the pottery, the implements, and the animal remains, especially those of man; this is especially the case with the pottery. In British ditches the fragments of the pottery of that period will, of course, be found at the bottom, that of the Bronze age intermediate, and the Romano-British uppermost. Thus some idea may be formed of the length of time that has elapsed since the execution of the ditch.

General Pitt-Rivers largely contributed to antiquarian literature. In the year 1872 he read an elaborate paper before the members of the Geological Society on "The Discovery of Palæolithic Implements in the Gravels of the Thames Valley," for which he was complimented by Sir Joseph Prestwich and Sir William Flower in the discussion which followed the paper. There are also several of his papers published in the "Archæologia." His authority is claimed by Lord Avebury (Sir John Lubbock) in "Prehistoric Times," by Sir John Evans in "Ancient Stone Implements of Great Britain," by Professor Boyd Dawkins in "Early Man in Britain," and "British Barrows" by Canon Greenwell. General Pitt-Rivers published four quarto volumes describing his explorations in the neighbourhood of Rushmore, illustrated by maps, plates, diagrams, and tables, which leave nothing to be desired. Among his works are also The History of King John's House at Tollard Royal, illustrated by 25 plates, his Inaugural Address at the annual meeting of the Royal Archæological Institute at Salisbury in 1887, printed in the Archæological Journal, Vol. xlv., p. 271, and another read at Dorchester in 1897.

Failing health compelled him to reside almost entirely at Rushmore, which made him all the more appreciate his Larmer gardens, to which he had devoted so much labour and expense, and which were a centre of attraction to the neighbourhood. A portion of Rushmore Park was set apart for an interesting collection of rare animals with the object of acclimatising them,

and for experiments on hybridization. He was a Fellow of the Royal Society, of the Geological Society, and several others, the Colonel of the South Lancashire Regiment, and a Vice-President of the Dorset Natural History and Antiquarian Field Club.

I should not do justice to the memory of the late Sir William Henry Flower, K.C.B., if I did not refer to his death, which occurred in July last, and by which science has lost one of its most eminent followers. Although not a member of our Field Club he gave us a helping hand on several occasions. In 1849 he matriculated at the University of London with honours in zoology. Five years after he became a member of the College of Surgeons. He was attached to the 63rd Regiment during the Crimean War, and on his return home he received from the Queen's hand the medal with clasps for the Alma, Inkerman, Balaclava, and Sebastopol.

In 1861 the office of Conservator of the Museum of the Royal College of Surgeons of England became vacant by the death of Professor Quekett, and Sir William Flower was nominated his successor. In 1864 he was elected a Fellow of the Royal Society. In 1879 he succeeded the Marquis of Tweedale as President of the Zoological Society. This honourable post he held to the day of his death. In the same year he was elected a Vice-President of the Anthropological Institute of Great Britain and Ireland, and the President in 1883. The next year he was appointed Director of the Natural History Departments of the British Museum, Cromwell-road, as successor of Sir Richard Owen. He held this important post until October, 1898, when, failing health compelling him to relinquish active work, he gave up the directorship which he had so long and ably held. The Royal Society awarded him one of the Royal Medals in 1882 for his contributions to the Morphology and Classification of the Mammalia, and to Anthropology. In 1887 he was made a C.B. and in 1892 a K.C.B. Sir William's contributions to the literature of Anatomy and Geology were various and voluminous. He contributed a long series

of articles on "Mammalia" in the eighth edition of the "Encyclopædia Britannica." The remarkable series of illustrations of variation, coloration, mimicry, and the anatomy of vertebrates which adorn the cases of the Central Hall of the Museum are in themselves a monument of his genius.

I now turn to the subject of my Anniversary Address, which is a continuation of that of last year, dealing with higher organisms than that of the mollusca, on which it treated.

There is no section of the animal kingdom which in its embryonic metamorphoses exhibits so many types and parallels by which their ancestry can be traced as that of the vertebrates. The changes are of peculiar interest to the biologist, in comparing the fossil types through which the embryo passes to maturity. With the exception of the lowest forms of fish, all vertebrates have a dorsal column and a cartilaginous skeleton in the embryo state; a few only continue in this stage, the greater part of them assimilate lime, and other mineral substances for ossification.

Fish, which are the lowest type of vertebrates, have special modifications which enable them to live in the water, move through it with rapidity, and utilize it as a medium for respiration.

The skeleton consists primarily of a vertebral column, more or less perfect, which, at the anterior extremity expands into a skull, which protects the cephalic portion of the neural-axis to which the organs of sense are connected. The canal for the lodgement of the neural-axis lies on the upper side of the column. In addition to the head, trunk, and tail, the skeleton has, in ordinary cases, a set of bones which give support to two pairs of limbs; those belonging to each pair are connected with the vertebral column, by a peculiar arch of which the anterior is termed the "scapular," the posterior the "pelvic." In many vertebrates, although the internal skeleton is fully developed, there is an external or dermal-skeleton as well. The dermal-skeleton is sometimes composed of true bone. This is the case in the *Lepidosteus* and *Ostracion* among existing

fishes, as well as in the whole group of Ganoids, now almost extinct. In the Crocodiles many of the dermal-plates show ossification, and occasionally among the Mammalia. The armour of the existing *Armadillos*, and the extinct gigantic *Glyptodon* afford a striking example of the co-existence of a well-developed bony envelope, with a complete osseous endo-skeleton. There is a variation in the structure of the vertebræ, even in the different regions of the same animal ; there is one general plan pervading throughout. The centra are disc-like, more or less elongated. The posterior and anterior faces articulate with the next succeeding centrum by an intervening cartilage. Each centrum has a channel for the reception of the spinal-column, which is protected by the neural arch, surmounted by the neural spine. The neural-arch is articulated with the anterior one, by which it is strengthened. Towards the extremity the vertebræ are reduced to the centra only, the neural and hæmal elements being entirely absent.

In a description of the skeleton of osseous Fishes it may be as well to remark that the distinction into regions, cervical, dorsal, lumbar, and caudal, so well marked among the vertebrates, is not so in the case of fishes. Owing to the pectoral-vertebra being fixed to the lower base of the skull, and the expansion of the hæmal-arches for the protection of the visceral cavity, there is no neck, or cervical region. The dorsal portion of the vertebral column must be considered as commencing with the first vertebra, the pelvic-arch has no bony attachment to the spinal column, there is no sacrum, and no marked separation between the dorsal and caudal elements ; there is consequently no proper lumbar region. In most fishes, especially among the eel-kind, the caudal portion forms a considerable part of the whole length of the body. The flexibility of the vertebral-column of fishes affords free movement through the water, and the function of the lateral-fins is only for balancing the body, and not for locomotion. In the conformation of the skull there are several departures from that of the ordinary form in the higher vertebrates, which adapt it for the

particular conditions of the life of a fish, besides those which mark its lower grade of development. With the exception of the *Amphioxus*, the Lancelet, and the *Cyclostomi*, Lampreys, the dermal covering of all existing fishes is strengthened by cartilaginous or by osseous scales, enclosed within the substance of the true skin. These scales are of various shapes and sizes, and in some instances merely stud the skin at intervals; in others they are in close contact at the edges or cover each other in an imbricated manner, or are developed into large plates, and firmly united into a sort of a cuirass, as is the case with many of the Palæozoic fish, especially those of the Old Red Sandstone. Nearly all the osseous fish of the present day have cartilaginous scales. The most simple instance of bony-scales is seen in the shark tribe, where the skin is beset with small tubercles, giving it a roughness, which is known as shagreen. The most perfect instance of the dermo-skeleton of a fish is where the bony-scales meet at their edges, and are covered externally with a lustrous surface.

In the Palæozoic age many of the predatory fish had palatal as well as jaw-teeth, for crushing the bony armour with which their prey was invested. The *Teleostei*, which form the majority of the fish of the present day, are the successors of the Ganoids, an Order to which the majority of the fossil remains of the Palæozoic and Mesozoic Ages belong. They made their first appearance not earlier than the Chalk. Instead of bony-plates their bodies are covered with thin elastic scales and a well ossified endo-skeleton. After this period the fish with palatal teeth began to decline. The shark-tribe, which made their first appearance in the Devonian Age, and culminated to 25 known genera, have now only one living representative, *Cestracion philippi*, the Port Jackson Shark.

The embryo of vertebrates passes through several changes before arriving at maturity. This can be traced in certain fossil groups which had preceded them. Their ancestral history can be traced by this metamorphic development. These changes are of

the greatest interest both to the palæontologist and the biologist. Although all vertebrates have a general conformity in their organisation, they show a great diversity of form, by which each class and order can be clearly defined. The two upper vertebræ of the cervical series of the vertebral column are designated the axis and atlas. The centrum of the atlas is not joined to, but remains either distinct from, or anchylosed to the axis. The primitive position of the limbs of vertebrates is at right angles to the axis of the body, and directed outwards. In the majority of the Reptilia and Amphibia the limbs of the adults do not depart very much from that direction. Changes of direction are found with birds. With man the change is more divergent from the types, for the axis of both the arm and the leg are parallel to that of the body. The lowest vertebrates in the scale retain throughout life their embryonic conditions. There is no bone or true cartilage around the neural-arch, neither is there any development of limbs; worm-like they move by the flexion of the body. The strength and rigidity of the spinal column increases in proportion as the limbs are developed. They never exceed four in number; in some cases two are absent, and in others both pairs are wanting. The limbs of Fish, Reptiles, and aquatic Mammals are modified for propulsion through the water, and not for support. With terrestrial Quadrupeds, whether mammals or reptiles, the limbs are adapted for the support of the body and for progression. With Birds the anterior pair of limbs is developed into wings, by which the body is more or less supported or propelled through the air. Sight, smelling, hearing, and taste appear to be possessed by most of the vertebrates. It is not uncommon for the visual organs to remain undeveloped when the environments of the animal render them useless, as in the case of those inhabiting underground caves in which the rays of sunlight never enter, or in the deep abysses of the sea. None of the limbs of fishes are prehensile; the mouth is propelled or guided by them to their food, but the act of seizing it must be done by the jaws; hence both the upper and lower are endowed with

the power of retraction or protraction as well as of opening and shutting.

The admirable adjustment of the jaw-apparatus compensates for the absence of hands and arms. The whole organisation of a fish is adapted for the element in which it lives and moves. The viscera are packed into a small compass, and repose in a cavity brought forward close to the head; the consequent obliteration of the neck more firmly connects the head to the trunk. The sharks, whose form of body, and strength of tail, enable them to swim near the surface, are further adapted for an active life, the absence of an air-bladder being compensated for by the large proportional size and strength of their pectoral-fins for raising the body and preventing a rolling movement. In long-bodied and small-headed fish the ventral-fin is placed far back towards the tail, and acts as a balancer. In large-headed fishes the ventral-fin is placed forward to assist the pectoral-fin to raise the head, which with most fish is disproportionally large; this is necessary for rapid progression.

None of the extinct fish of the Silurian and Devonian Ages have vertebral-centra; some Ganoids, however, show the conversion of the notochordal capsule into distinct bony segments. The *Lepidosiren* of the present day retains this notochordal condition, but without the compensating Ganoid scales. On the other hand the *Siluridæ*, Cat-fish, combine the tuberculated bony-dorsal-plates or scutes with a well-ossified internal skeleton. The back-bone of the *Teleostei* consists of separate well-ossified vertebræ; they constitute the bulk of the fish from the Tertiary Age to the present time. The skull retains much of the primitive cartilage as in the case of the *Salmon* and the *Pike*. It is in the abdominal fresh-water fish generally, that the semi-osseous condition of the skull is present. There is generally a renewal of the teeth during the whole of a fish's life, to which there are exceptions.

Before proceeding to a general survey of the characteristic structure of fish it will be desirable to bestow some attention to the *Amphioxus* or Lancelet, which seems to connect the

vertebrates with the invertebrates in a most remarkable way, linking the lower orders of fishes with the Articulata and Mollusca. Its usual length is not more than two inches. The head, which is scarcely distinguishable from the body, has no external indications of the existence of the organs of sense. The body is marked externally by a succession of oblique striæ, seen through the translucent skin, and which indicate the lateral muscles. Almost the only trace of the vertebral column is to be found in the fibrous and cellular structures surrounding and supporting the neural-axis, which is nearly uniform in size from one extremity to the other, showing no enlargement at its cephalic extremity, which could be denominated a brain. In the neural-arch which represents the vertebræ in other animals, there is only the most indistinct indication of a subdivision into segments. It is in the arrangement of the organs of nutrition that the greatest approximation to the invertebrate type is displayed; the mouth is lined with ciliæ which have a rotary motion similar to those of the *Rotiferæ*. In examining the structure of the respiratory and other organs of the *Amphioxus*, we are at once struck with their resemblance to the Ascidian Mollusca. The movements of the *Amphioxus* are somewhat serpentine, rapid, and powerful. It passes a large part of its time either buried in the sand or lying flat on its surface. In these particulars the structure of the *Amphioxus* is similar to the higher vertebrates at the very early stages of development. There is no question that it must be regarded as essentially a fish. Among the inferior members of the early cartilaginous group, such as the *Cyclostomi* or circular-mouthed fish, the characteristic structure of vertebrates is further developed, showing the progressive steps towards the development of the vertebral-column, from the first segmentation of the notochord to the complete replacement of the vertebral element with the full development of the neural and hæmal-arches. For instance, in the case of the Sturgeon, firm cartilaginous rings form the outer portion of the notochord.

There are about eighty families of marine fishes, of which no less than forty are almost universally distributed over the seas

of the globe ; of the remainder, many range from the North Atlantic to Australia, six are restricted to the North Seas, one to the South, six to the South Atlantic, fifteen to the Pacific. Thirty-six families live exclusively in fresh-water ; these present many interesting peculiarities in their distribution. The Palæarctic and the Nearctic regions together contain twenty families. The Palæarctic is characterised by the absence of osseous Ganoidei, Cobitidæ (Loaches), and Barbels. The Nearctic is characterised by osseous Ganoidei, Amiurina, Cat-fish, and Catostomina (Suckers); no Cobitidæ or Barbels. Among the peculiarities of distribution, is a curious fish found only in Lake Baikal, in the mountainous district of Russian Siberia, 2,000ft. above sea-level and 1,000 miles from the sea ; its nearest ally is the Mackerel (marine). *Osteoglossum* is represented by one species, the huge *Arapaima*, in Brazil and Guiana, one in Borneo and Sumatra, a third in Queensland. The curious *Lepidosirenidæ* are represented by existing genera, *Lepidosiren* of the Amazons, and *Protopterus* of the rivers of tropical Africa. Fresh-water fish of the present fauna came into existence during the Tertiary Age, when the great changes in the distribution of land and sea took place. Salt-water is not invariably a barrier, and we may account for instances of singular disconnections of families and genera. The dispersal of a single type over several distant continents may and does generally point to its great antiquity, but it does not prove that it is more so than others limited to one region only.

The Carboniferous and Permian Beds contain numerous fish remains, allied to the *Lepidosteus*, the Gar-pike of North America. Traces of *Elasmobranchii*, Sharks, and of Rays in the Upper Silurians, become abundant in the succeeding Devonian and Carboniferous Beds, and continue so to the present day. The Ganoid, *Ceratodus*, which now lives in the rivers and lakes of Queensland, reaches as far back as the Trias. It is one of the very few instances where a genus, founded upon the evidence of fossil specimens, has subsequently been found in a living condition. Fossil teeth of the genus were

well known, but it was not until the year 1870 that the existence of a living representative was brought to the notice of science.

The *Teleostei* which constitute the majority of the fishes of the present day are the successors of the *Ganoids*. They do not appear earlier than the chalk. By far the greater number are found in the Tertiary Beds, mostly marine. Ganoids are now reduced to two genera only, *Lepidosteus* and *Accipenser*. There is no period of the earth's history in which there was a more varied development of Fish. Pectinate, thin-scaled (*Ctenoid*) and circular-scaled fish (*Cycloid*), occurred at the later stages of the Mesozoic Age.

The structure of the heart, brain, generative organs, and the air-bladder of the *Polypterus* and *Lepidosteus* evidences a higher and more Reptilian character than those of most other fishes. This is, however, a question for the comparative anatomist, and not for Palæontology; Palæontologists will point to the persistent notochord and the heterocercal tail in the Palæozoic and Mesozoic fishes as evidence of an arrest of development or a retention of embryonic characters in the fishes of early times. It is remarkable that after all the mutations to which fish have been subject, the edible forms, such as the *Cod*, the *Turbot*, the *Salmon*, the *Herring*, became predominant immediately preceding the advent of man.

Elasmobranchii—*Rays* and *Sharks*.—These differ greatly in the shape of the body. That of the Shark is long, and more or less cylindrical, the gill-openings lateral; the body of the Ray is flat, the gill openings are on the underside and not lateral; tail slender. The Order is largely represented in every geological formation. The Shark is exclusively carnivorous, and soars, so to speak, in the higher regions of the seas, maintaining itself near the surface by its large and powerful fins without the aid of an air bladder. The habits of the Ray are quite in unison with the form of its body; it leads a sedentary life, moving slowly at the bottom, and rising rarely to the surface. It lives at more moderate depths than the Shark.

The vertebral column of this Order is usually divided into distinct segments, the centra are calcified, but do not consist of true bone. *Palæospinax*, from the Lower Lias, Lyme Regis, is the first Elasmobranch with a well calcified centrum. As a rule the Palæozoic types are characterised by a considerable development of the exo-skeleton, although there are some, the *Sharks* for instance, which have no such bony protection. The teeth of the modern *Ray* retain the primitive type. They appear for the first time in the Cretaceous Beds of Lewes, Sussex, and of the Lebanon, also in the Oligocene and Miocene Beds of Germany. The *Torpedo* or Electric Ray is remarkable for its large pectoral-fin, which is attached to the head, where the electric organs are placed. The electric shock is delivered voluntarily, either in self-defence, or for killing its prey; usually it lives at the bottom of the sea. They are not all marine; some live in inland fresh-water marshes. The electric currents generated by these fish, exercise all the known powers of electricity, rendering the needle magnetic, decomposing chemical compounds, and emitting the electric spark. The body is naked. Its first appearance was in the Tertiary Age. *Torpedo (Narcobatis) Egertoni*, and *T. gigantea* occur in the Middle Eocenes of Monte Bolca, near Verona. The *Sting-Fishes (Cyclobatis)* differ from the *Torpedo* family in being furnished with a series of spinous tubercles, and the rest of their bodies and fins covered with minute prickles. They belong to the Order *Trygonidae*. Three species are found fossil in the Upper Lebanon. They have a wide distribution in the modern seas, the majority inhabiting the tropical portions of the Indian Ocean and the Atlantic. They preceded the *Torpedoes* in geological time, but there is no evidence of their existence before the Eocene Age.

Chimæride.—Regarded by some writers as a sub-order of the *Sharks*, to which, although they have some resemblance externally, in the shape of the body, in the organs of propagation, and in the structure of the egg-capsules, yet they present such important differences as to relegate them to a distinct Order. The skeleton is entirely cartilaginous, and the vertebral column is only imperfectly

segmented ; the notochord is surrounded by a series of cartilaginous rings, some of which are partly calcified. This feature, together with the continuity of cranial cartilage, shows a relationship with the *Ganoids* and the *Dipnoi*. The living *Chimæras* are few in number and of comparatively small dimensions, not exceeding a length of five feet. In living forms the four gill-clefts are covered by a fold of the skin. Like the *Dipnoids* each jaw is armed with a pair of broad dental-plates, with the addition of a pair of smaller cutting teeth in the upper jaw. Unlike the *Shark* the mouth is always terminal. The fins are similar in structure and position to those of the Sharks, also in the absence of a swim-bladder. This genus is represented by three species ; *C. monstrosa*, from the coasts of Europe, Japan, and the Cape of Good Hope ; *C. collieri*, from the west coast of North America ; and *C. affinis*, from the coast of Portugal ; *Chimæroids* are principally found in the Mesozoic and Tertiary formations. In the genus *Callorhynchus* we have apparently the most specialised representative of the group with crushing teeth. It is represented by an existing species in the seas of the southern temperate zone. Another Chimæroid, *Myriacanthus paradoxus*, known by its spines and teeth, has been found in the Lower Lias of Lyme Regis.

Squatinidæ.—There is only one solitary representative of this once considerable family of the Shark tribe, *Squatina* (*Rhina*) *angelus*, the Angel or Monk-fish, which is not unfrequently caught on our coast. *Squatina* occurs in the Lithographic Stone of Solenhofen, Kimmeridgian, also in the Upper Chalk and the Eocene.

Notidanidæ.—Lateral teeth, comb-like, inclined backwards. The primitive morphological position of *Notidanus* is shown by the persistent notochord and the character of the skull, which is only very slightly removed from the original type. The teeth of this group have been found in the Jurassic and later formations. Four living species are known, which are distributed over nearly all the tropical and sub-tropical seas ; their average length is about fifteen feet.

Cestraciontidae.—Dorsal fins, armed with a spine. Dentition adapted for the prehension and mastication of crustaceous and hard-shelled animals. This family is one of particular interest, it occurs in the Palæozoic and Mesozoic Beds. It is represented at the present day by the Port Jackson Shark, *Cestracion philippi*, which throws much light on the dentition of its fossil predecessors. This Shark is harmless, its food consisting of Crustaceans and shell-fish. After death the teeth are easily detached from the jaws. Four species are known from Japan, Amboyna, Australia, the Galapagos Islands, and California.

Lamnida.—These made their first appearance in the Carboniferous Age. The majority of the family are found in the Cretaceous and Tertiary Beds.

The fossil-remains of fish, which have excited more attention than any others, are the large bony spines called Ichthyodorulites, which appear to have been those of the anterior part of the dorsal-fin of Elasmobranchii. The earliest genus is *Onchus*, from the Silurian bone-bed of Ludlow. Ichthyodorulites are found in most of the geological beds from the Palæozoic to the Pliocene. At the close of the Jurassic age they began to decline, appearing in small numbers in the chalk, notably in the chalk at Lewes. Agassiz relegates them to the genera *Hybodus*, *Spinax*, *Chimæra*, and *Ptychodus*. They are often associated with the teeth of Sharks, but as it cannot be irrefutably proved to which species they belong, this distinguished naturalist gives a generic name to each.

Lamnida.—Owing to the variety in the shape of the teeth in different parts of the same mouth, a satisfactory determination of species is impossible.

Lamna (Oxyrhina) "*The Porbeagles*."—Of the three living species, *L. cornubicus* is the best known; it frequently strays to the British coast. It is carnivorous, feeding chiefly on fishes. Our Hon. Secretary has a specimen of this Shark in his Museum at Montevideo caught in the West Bay.

Scyllida.—The common "*Dog-fish*" of our coast. Frequents the seas of the temperate zones. It was found by the Challenger

Expedition in the Pacific at a depth of 1,900 fathoms in company with teeth of *Carcharodon*. In connection with the Expedition, one of the most striking features of the fauna of the southern temperate zone is the reappearance of types inhabiting the corresponding latitudes of the Northern Hemisphere, and at the same time absent in the intervening tropics. There are two British species, the *Larger* and the *Lesser Spotted Dog-fish*.

Carcharodon.—Only one species of this genus is now living, *C. rondelletii*. It is the most formidable of all the Sharks. Its habits are pelagic, and it is found in all tropical and sub-tropical seas, attaining a length of 40ft. It made its first appearance in the Tertiary Age. Teeth of enormous size of *C. megalodon* are not uncommon in the Coral Crag of the Eastern Counties; were dredged up by the Challenger Expedition in the Pacific at a depth of 1,560ft., associated with the nodules of manganese and Cetacean auditory-bones, the enamel of some of the teeth is more than four inches in length along a serrated edge, and as large as, if not larger, than the fossil *C. megalodon*. *Carcharodon* is found in the Miocene Beds of North America, Belgium, Malta, and Egypt.

Carchariinæ, *Carcharias*.—This must not be confounded with *Carcharodon*, dorsal fins destitute of spines; it comprises the true Sharks. It is extremely common in the tropical, less so in the temperate seas. The genus comprises thirty or forty species, of which the most common is the Blue Shark, *C. glaucus*. Some attain the length of 25ft. The Tope, *Galeus vulgaris*, is met with on the British coast; it has a wide range in the tropical and temperate regions. It is common in California and Tasmania.

The Hammer-headed Shark, *Zygæna malleus*, belongs to a genus remarkable for the lateral extension of its skull, resembling a hammer, which gives it the appearance of the head being at right angles to the axis of the body. It is abundant in the tropics. Its first appearance was in the Cretaceous Age.

Dipnoi.—The researches of Professor Huxley on the anatomy of *Ceratodus* show that the Dipnoi, notwithstanding their

affinities to the *Chimæridæ*, had better be retained as a distinct Sub-Order of which *Lepidosiren*, *Protopterus*, and *Ceratodus* are the only living representatives. *Lepidosiren paradoxa* is found living in the system of the Amazons. *Protopterus annectens* is limited to the rivers of tropical Africa, and is the only known species of this genus. *Ceratodus* is one of the few instances where a genus established on the evidence only of fossil specimens has been afterwards found living. The teeth, which were the only imperishable parts of this cartilaginous fish, had long been known; it was not, however, until the year 1870, that a living specimen was brought from Queensland, and identified as related to the fossil teeth of *Ceratodus*, from the Rhætic Beds of Aust-cliff, near Bristol. The teeth are found in widely distant regions of the world, in the Trias, in the Jurassic Beds of the Colorado, South America, and in the Stonesfield Slates of these Islands. The peculiarity of the living *Ceratodus* is its being able to exist for a considerable time buried in the mud during the dry rainless seasons.

Dipnoid Fish have a persistent notochord, which passes uninterruptedly into the cartilaginous base of the skull, the posterior part is more or less ossified. The fore-fins differ from the pectoral fins of the *Ganoïds*, they are flexible in every direction, and in every part. The jointed axis of this fin is retained in the *Lepidosiren*, which is destitute of rays; on the other hand that of the *Protopterus* is furnished with fin-rays.

Ganoidei occupy an intermediate position between the *Selachii*, *Dipnoi*, and *Teleostei*, having characters common with each. They appeared as early as the Silurian Age, and were contemporaneous with the *Sharks* and *Rays*, forming a large proportion of Fish-life at that period. This Order is difficult of definition owing to extreme diversities of the forms. The body is either naked, or covered with a shagreen skin, with large detached bony scales, like the *Sturgeon*, or with the true ganoid scales. The vertebral column is either cartilaginous or fully ossified; the tail diphyccercal, or heterocercal; the

teeth vary greatly in structure ; they are either borne on the margin of the jaws or as flattened discs, attached to the roof of the mouth. The borders of the fins are frequently furnished with modified scales known as fulcra. The Order now comprises only seven living genera, *Lepidosteus*, *Polypterus*, *Calamoichthys*, *Amia*, *Accipenser*, *Scaphirhynchus*, and *Spatularia*, which are partially or wholly confined to fresh water lakes and rivers, and are confined in the Northern Hemisphere. The terminal part of the notochord is not ossified. The exo-skeleton of *Ganoids* presents most extreme variations, *Spatularia* is naked ; *Accipenser* and *Scaphirhynchus* develop numerous dermal plates, composed of true bones. The single genus *Amia*, which lives in the fresh-waters of North and Central America, is covered with cycloid scales, which not only overlap, but are fitted together with pegs and sockets. The endo-skeleton also differs materially. *Spatularia*, *Scaphirhynchus*, and *Accipenser* have a persistent notochord, the sheath cartilaginous, showing rudiments of the vertebral arches. The vertebræ of *Polypterus*, *Lepidosteus*, and *Amia* are fully ossified.

Palæoniscidæ.—This family is extinct, and for the most part it is Palæozoic. It made its first appearance in the Old Red Sandstone, and disappeared at the commencement of the Jurassic Age.

Cephalaspidæ.—The members of this group have the head and the anterior part of the body covered with a continuous shield, while the rest is studded with small angular plates or scales. There are no traces of an endo-skeleton, of a lower jaw, or teeth. The buckler is semi-circular in shape, the posterior sides terminating in some cases in two long spines pointing backwards, and truncate. There is not enough known at present about these fishes to warrant any conclusions as to their distribution in time or space. *Cephalaspids* occur in the Lower and Upper Ludlow-beds, in the Downton Sandstone, in the Upper Silurians of Russia and Galicia, and in the lowest portion of the Old Red Sandstone, assigned by geologists to the Silurian.

As to their distribution in space, they have been found in the West of England, in the East of Scotland, in Russia, in Gallicia, and in the Eifel. The two pectoral-fins of *Cephalaspis* differ from those of other Fish; it is probable they had other functions than those of mere locomotion, and were used to cause a current of water to pass to the branchial organs, which were enclosed by the great head-shield.

Pterichthys, discovered by Hugh Miller in 1831.—The body carapace consists of osseous-plates united together, and closed both above and below, and at the sides, but open in front for the head, and at its distal end, for the tail. The head is represented almost entirely by a dorsal shield, formed of plates united by sutures. The pectoral-fins, one on each side, are long and slender; they probably served to aid the fish to shuffle along the sandy bottom, and if left dry at low-water enabled it to escape. They remind one of a mammalian humerus. The head-shield is semi-elliptic in shape, rounded in front and truncated behind, where it meets the body carapace. The hinder extremity of the fish terminates with a heterocercal caudal fin, covered with osseous-plates. There are four genera, all of which belong to the Old Red Sandstone period, differing from each other by the overlapping of the anterior median dorsal plates. Many acquainted with popular geology and palæontology may be surprised to find that the *Asterolepis* is not the *Asterolepis* of Stromness, which obtained some notoriety through the writings of Hugh Miller, which is a huge Coccostean. The name could no longer be applied to Hugh Miller's Stromness fish, which is now named *Homosteus Milleri*, Pander. *Asterolepis* now stands as a genus independent of *Pterichthys*, and is represented in this country by *Asterolepis maxima*, of Agassiz, from the Upper Old Red Sandstone of Nairn.

Placodermi.—This Sub-Order comprises the oldest vertebrate remains, ranging from the Old Red Sandstone to the Carboniferous Beds—*Pterichthys*. Head and trunk broad, the scutes ornamented with tubercles, tail covered with scales slightly imbricated. The exo-skeleton is now well known, especially

owing to the researches of Hugh Miller, Pander, and Traquair. The head and half the body are covered with bony plates, forming a buckler, and a breastplate articulated at the sides. The rest of the body is covered with ganoid scales.

Coccosteidæ.—*Coccosteus* has its maximum development in the Old Red Sandstone. The helmet and cuirass are firmly united ; there is no trace of pectoral fins, which characterise *Pterichthys*. The unprotected part of the body shows an ossification of the neural and hæmal spines ; both jaws are furnished with from ten to twelve teeth on each side, ankylosed to the bone. The blank spaces between the neural- and hæmal-spines indicate the position of the perished notochord.

Lepidosteidæ.—Head and trunk much elongated, the large teeth are set on the margin of the jaw, the rest are comparatively small. The genus *Lepidosteus* made its first appearance in the Tertiary Age. It now only lives in the rivers of North and Central America and Cuba. Fossil remains of it have been found in Europe and in North America.

Lepidotidæ, *Lepidotus*.—The fulcra of the fins are well developed ; the genus occupies an important place in the Mesozoic rocks, from the Trias to the Cretaceous and is largely represented in the intermediate Jurassic, both in Europe and Asia. *L. minor* is very common in the Purbeck Beds in the neighbourhood of Swanage, *L. maximus* is abundant in the Kimmeridgian of Bavaria ; a few of its teeth have been found in the Kimmeridge Clay of Kimmeridge.

Cœlacanthidæ.—With this family we come upon a group of fishes, not found in the older Palæozoics, but extending from the Carboniferous to the Upper Cretaceous, and linking the extinct *Osteolepis* of the Old Red Sandstone with *Calamoichthys*, a native of tropical Africa, which has not yet been found in a fossil state. *Polypterus*, another genus of the same family and which lives in the waters of the Upper Nile, is closely allied to the extinct *Osteolepis*.

Accipenseridæ.—*Sturgeons* are geologically one of the most recent of the family of the Ganoids. The two living genera

Accipenser and *Scaphirhynchus* are now living in the Northern Hemisphere; and frequent the mouths of the rivers of Europe, Asia, and North America. Of *Scaphirhynchus* four species are known, one from the regions of the Mississippi, and three from Central Asia. Their appearance in regions so widely distant is a striking instance of the affinity of their fauna. The skull is cartilaginous, preserving the typical form, and is overlain with a series of dermal-bones. The notochord is persistent. The neural- and hæmal-arches are either cartilaginous or bony; the tail is heterocercal. The skin is naked, dotted over with bony-scutes, or covered with rhomboidal-scales. They are not found in beds earlier than the Eocene Age. Mr. A. Smith Woodward remarks that the typical forms of this sub-Order constitute a link, connecting the cartilaginous Ganoids with the *Teleostei*, whose bones are fully developed. The well-known typical Sturgeon is a freshwater fish, characterised by its elongated body, produced snout, and the toothless jaws of the adult. It swims low, and grovels along the bottom, feeding in shoals on decomposing animal and vegetable substances carried down by the rivers with the *débris* of the continents through which they pass. The sides and middle parts of the body are protected by regularly arranged dermal-plates. This protection renders the ossification of the endo-skeleton needless. The exo-skeleton, which is relieved from much of its weight by the detached instead of converted dermal-plates, is further aided by a large air-bladder, by which it can with the greater facility rise to the surface. These plates afford an insight into the habits and conditions of the heavily protected Ganoids, so abundant in the early periods of the earth's history.

Pycnodontidæ.—This family ranges from the Lias to the Eocene Age. We have records of it in Europe, Asia Minor, North America, and Australia. Their bodies are much compressed, like the *John Dory*, and covered with large rhomboidal, enamelled scales. The notochord is persistent, and the neural-arches and ribs are entirely ossified. The maxillæ are toothless, the palate carries five longitudinal rows of oval or round teeth;

those on the hinder part of the jaws are molar-like. Sir Philip Egerton describes the scales as being regular, lozenge-shaped, each bearing on its inner posterior margin a thick, solid bony-rib, sliced off obliquely above and below on the opposite sides, forming splices with the corresponding processes of the adjoining scales.

Mesodon, Wagner.—The head and opercular-bones externally ornamented with granulations; vomerine teeth arranged in five longitudinal series, while the splenial are usually arranged irregularly. *M. damoni* is a large species, known by the dentition of the lower jaw; the principal series on the splenial bone consist of teeth twice as broad as long. It has been found in the Portland Limestone, Upwey.

Microdon.—The body of this fish is almost discoidal, with a small abbreviated caudal pedicel. The scales of the anterior part of the body are ornamented with rugæ and pittings. *M. radiatus*, Agassiz, is frequently found in the Purbeck Beds of Langton, near Swanage. *M. pagoda*, Blake, in the Portland Stone (flint-bed), Ridgeway, near Weymouth.

Gyrodus, Agassiz.—The body of this fish is similar in shape to the last; the teeth are rugose and mammillated. Those of the vomer are arranged in five, and the splenial in four series.

G. cuvieri, Agassiz.—This is a large species, known only by its dentition. It has been found in the Kimmeridge Clay at Weymouth.

G. coccoderma, Egerton.—A species only known by the dentition. The vomer is furnished with a prominent median series of teeth; the outer row of the series are obtusely conical. There are two fine vomers of this species from the Kimmeridge Clay of Kimmeridge Bay in the Geological Department of the British Museum which I presented to the Trustees. They were described and figured by the late Sir Philip Egerton in the Quarterly Journal of the Geological Society, 1869. One is erroneously named *Sphærodus gigas*.

Aspidorhynchidæ, *Aspidorhynchus*.—Head and trunk much elongated, the snout projecting in advance of the lower jaw.

A. Fisheri, Egerton.—Not uncommon in the Purbeck Beds of Swanage. There is a nearly complete specimen of this fish in the County Museum. The family ranges from the Lias to the Purbecks, in fact throughout the whole of the Secondary Period, but it did not survive into the Tertiary Period.

Teleostei.—This is the last and the most highly organised Order of Fishes. The exo-skeleton usually takes the form of overlapping scales, the free-portions of which are for the most part smooth and rounded at the edges. The vertebral centra are always ossified, each face is deeply concave, and the primordial cartilage of the skull is more or less replaced by bone. It is difficult to define the point of separation of this Order from the Ganoids. The body is usually covered with thin cycloid, or ctenoid scales. The gills are suspended in a gill-cavity, covered by an operculum. Sometimes there are scattered dermal-plates either of true bone, or as in the body of the *Ostracion*, which is guarded by a carapace of hexagonal scutes, calcified, but not of a bony structure, or like the File-fishes, the bodies of which are covered with innumerable small spines somewhat similar to the shagreen of the *Elasmobranchii* in appearance, but not in structure. The pelvic-fins are either abdominal, or placed in advance of the pectorals. There are no fulcra on the fins as in the Ganoids. It is now abundant in tropical and sub-tropical seas, and appears for the first time in the Middle Eocene of Monte Bolca. Most Teleostei possess two pairs of limbs, the pectoral and ventral-fins; the latter are often absent, the former only occasionally. An air-bladder underlies the vertebral column. It is absent in a small number of the group, such as the *Blennies*, the *Flat-fish*, the *Sand-eels*, and a few others. Some have accessory respiratory organs, which enable them to sustain life for a considerable time out of the water under exceptional circumstances, such as droughts and rainless seasons.

Some Fish are ovoviviparous, eggs hatched within the body of the parent; without placental attachment. The young are able to swim from the first moment of their birth with agility and

freedom. *Zoarces viviparus* belonging to the Blenny family is an instance. Among the Teleostei *Lophobranchii* have a pouch on the lower side of the tail of the male upon whom devolves the care of their young. Instances of the females taking care of their progeny are extremely scarce in fishes, the living *Aspredo* and *Solenostoma* do so, whose precursor *Solenorhynchus* is found in the Eocene of Monte Postale.

Among the Teleostei are the Sword-fishes, pelagic, occurring in all tropical and sub-tropical seas. The upper jaw is produced into a long cuneiform weapon, they are endowed with extraordinary strength and velocity, and are rarely captured. They are the largest of the sub-order, and not exceeded in size by any other Teleostean. Sword-fishes never hesitate to attack Whales and other large Cetaceans, and by repeatedly stabbing them they generally come off victorious.

Fossil Sword-fishes from the London clay have been referred to the genus *Histiophorus*, but they may be generically distinct. The *Mackerel*, the *Angler* or *Sea-Devil*, the *Miller's-thumb*, the *Goby*, the *Blenny*, the *Perch*, all of which frequent our coast (as does the *Sword-fish*) belong to the Order *Acanthopteri*. The *Cod*, the *Haddock*, *Sand-eel* or "*Launce*," the *Whiting-pout*, and the *Pleuronectidæ* or *Flat-fishes* belong to the Order *Anacanthini*. They were unknown before the Eocene Age. The *Cod* is found between 50° and 70° lat. N. to a depth of 120 fathoms, and not nearer the equator than 40° lat. The deep sea *Macruridæ* with elongated tails, tapering backwards and without a separate caudal fin, known only a few years ago, from a limited number of examples, are found distributed throughout all the seas, occurring in considerable numbers and variety at depths from 120 to 2,600 fathoms. The *Sand-eels* live in large shoals, rising as if with one accord to the surface, or diving to the bottom, where they bury themselves in the sand. The *Flat-fish* has the head and part of the body unsymmetrically formed. Owing to the absence of an air-bladder they are unable to maintain their bodies in a vertical position, resting and moving on one side only. Both eyes are on the upper-

side, and undergo remarkable changes. The larvæ are perfectly symmetrical, with an eye on each side of the head, and swim in a vertical position like other fishes. The manner in which one eye is transferred from the lower to the upper side is not accounted for. The head being cartilaginous, it is not difficult to conceive the possibility of its being twisted. They live at the bottom of the sea, and swim with an undulating motion of the body. *Rhombus*, a genus which includes the *Turbot* and *Brill*, has been found fossil in the Miocene Beds of Tuscany and Sicily, and in the Eocene Beds of Monte Bolca. The mouth is furnished with vomerine teeth. *Pleuronectes*, which includes the *Plaice*, the *Flounder*, and the *Dab*, have none. The *Sole*, of which there are nearly forty species, inhabits all the suitable localities in the tropical and temperate zones.

Siluridæ, Cat-fish.—Of all the *Teleosteans* this family is more nearly allied to the Ganoidei than any other. The connection is through the Amiidæ. Several of this family belong exclusively to the Mesozoic Age. *A. calva* is its only living representative, it lives in the rivers and lakes of North America. The family Siluridæ is represented by numerous genera exhibiting a great variety of form and structure of the fins. They inhabit the fresh-waters of all the tropical and temperate regions; a few enter the sea, but keep near the coast. The first appearance of Siluridæ is indicated by fossil remains in some Tertiary deposits of Sumatra. Spines referable to *Cat-fishes* have been found in the Tertiary formations of North America. The exo-skeleton consists of osseous plates. Cope considers the *Sturgeon* to be their ancestor.

Scopelidæ, to which *Ipnoops* belongs, is a singular genus discovered for the first time by the Challenger Expedition. Four examples were found off the coast of Brazil at depths varying between 1,600 and 2,150 fathoms, all belonging to the species *I. murrayi*. The eye seems to have lost its function of vision and assumed that of producing light. Among other Siluridæ, the family of *Carps* is one of the most numerously

represented in the fresh waters of the Old and New World—*Barbus*, the Barbel, of which there are 160 species now living in Europe, Asia, and America. *B. vulgaris* is abundant in the Thames, from Putney upwards. *B. steinheimensis* is found fossil in the fresh-water calcareous Miocene Beds of Wurtemberg, and *B. megacephalus* in the Miocene Beds of Padang, Sumatra. *Cyprinus*, the Carp Family came originally from China; and is now distributed throughout Europe. The fecundity of the Carp is enormous; their numbers would soon become excessive were it not for the many enemies, which feed upon their spawn. No less than 70,000 eggs have been found in the ovary of a single individual. *C. auratus* is also a native of China. It is distinguished by the golden colour of the membrane lying immediately beneath the scales. In this country they are naturalised and breed freely in open waters. *Gobio fluviatilis*, Willoughby (*Cyprinus gobio*, Lin), the Common Gudgeon; *Leuciscus rutilus*, the Roach; *L. vulgaris*, the Dace; *L. cephalus*, the Chub; *L. alburnus*, the Bleak; *L. phoxinus*, the Minnow; *Abramis brama*, the Bream; *Cobitis barbatula*, the Loach; all belong to the Family Cyprinidæ. To the Esocidae, the Pike, *Esox lucius*, belongs. It includes one genus only, and inhabits the fresh-waters of the temperate parts of Europe, Asia, and America. Fossil Pike have been found in the Miocene Beds of Oeningen and several other places. The remains of the Common Pike, with an extinct species *E. Ottoi*, Ag., are largely distributed in the Quaternary Beds.

The *Eel tribe*, Murænidæ, is spread over almost all the fresh-waters and seas of the temperate and tropical regions. *Nemichthys*, a deep-sea form, living at depths from 500 to 2,600 fathoms, is found only in the Atlantic; the Conger-eel, *Conger conger*, is almost cosmopolitan, and plentiful in every European sea. Three other species are known, of which *C. marginatus* lives in the Indian Ocean. *Gymnotus*, the Electric Eel, is the most powerful of electric Fishes, growing to a length of six feet; it is abundant in Brazil and the Guianas. The whole electric apparatus which supply *Gymnotus* and *Torpedo* consists of 200

nerves; and is much larger than the organs of sensation and movement of the same animals.

Of all the Vertebrates, Fishes possess conditions the most favourable for preservation in a fossil state. No other class has furnished so complete and so numerous a list of remains, owing to their having been covered by the fine sand or mud in which they were deposited. The number of species of the present day far outnumber those of past geological ages. During the Tertiary Age some localities appear to have had a fish-fauna analogous to the one now existing, both in numbers and variety. The earliest remains of fish occur in the Upper Silurian Beds of Ludlow. The most productive beds of this age are the Provinces of the Russian Baltic. Compared with the Old Red Sandstone, the other members of the Devonians of Europe are very poor in fish-remains. The American beds of that period are productive, but on the contrary they differ in the entire absence of *Pteraspidae*, *Cephalaspidae*, and *Acanthodidae*. The fauna of the Old Red Sandstone period appears to have been littoral, confined to shallow-water, and probably brackish. The *Pteraspidae* and *Placodermi* did not survive the advent of the Carboniferous Age, whilst the *Selachii* (*Sharks* and *Rays*) which had hitherto been rare began to take a prominent part, becoming less rare in the succeeding Permian Age. The sudden interruption in the development of animal life towards the end of the Palæozoic Age was equally shared by the Fish-fauna. Among the *Dipnoi* the *Ceratodus* is conspicuous in the Trias and Jurassic Beds. The appearance of the *Teleostei* in the Permian is doubtful. There are, however, a few genera of that age, which, notwithstanding the incomplete ossification of the vertebral column, bear some resemblance to them. The Order *Lepidosteidae* is characteristic of the Fish-fauna of the Trias, and continues through the Jurassic to the Cretaceous. Agassiz and Egerton assign 76 species to the Lias out of 152 known *Teleostei*. The *Lepidosiren*, *Protopterus*, *Ceratodus*, and *Sturgeon* are of some interest, as they recal to mind the palæozoic ancestry. The majority of the Upper Jurassic fish belong to the families *Lepidosteidae*, *Amiidae*, and

Pycnodontidæ:—*Lepidotus*, *Pleuropholis*, *Pholidophorus*, *Ophiopsis*, *Histionotus*, *Aspidorhynchus*, and *Belonostomus* occur in this county.

At the commencement of the Cretaceous Age a great change took place in the fish-Fauna. The most remarkable was the depletion of the Ganoid, and the predominance of the Teleostei, a few isolated types, however, lingered during the Lower Cretaceous Age, when their extinction became nearly complete. The London Clay of the Island of Sheppey has yielded about 100 species of fish-remains, of which 19 are Rays and 10 Sharks. Among the Ganoids *Pycnodus* and *Gyrodus* have left their teeth. All the other forms belong to Teleostei. Among the 40 genera only 4 are now living and are restricted to the tropical seas; the rest are extinct. The Lower Eocene Beds of the Paris basin, in addition to scales of the Ganoid *Lepidosteus* (now found living, only in North America), yield a large number of shark's-teeth. The Calcaire of Monte Bolca, near Verona, contains an important deposit of fish-remains.

Pteraspida, Cephalaspidæ, and Placodermi are distinguished from all other Ganoids by the development of the exo-skeleton, recalling to mind such osseous fishes as the Mesozoic Siluridæ, which are separated by a considerable gap in point of time. At all events it is reasonable to consider the Selachii, and more certainly the Placodermi, to be derived from the primitive Ganoidei. The relations between the Ganoidei and the Teleostei are so close that it is difficult to decide the point of departure, but taking everything into consideration the Siluridæ (*Cat-fish*) may prove to be that point. Towards the close of the Tertiary Age, Fishes show a relationship with those now living. There is a marked difference between the Fish of the Upper and Lower Tertiaries. In the latter their living representatives are restricted to the tropics, in the former, especially in the Pliocene, to the temperate regions. Those of the Pliocenes of Sub-Appennine Italy, the Roussillon of Southern France, Malta, and Egypt, the Craggs of Belgium and England almost without an exception belong to genera now living in the adjoining seas.

I have now arrived at the end of my Anniversary Address, in which I have endeavoured to trace the morphological history of the earliest section of the Vertebrates. In case I am permitted to do so I will take the rest of the sections, Reptiles, Birds, and Mammalia in succession.



Dorset Natural History and Antiquarian Field Club.

Dr.

RECEIPTS and EXPENDITURE from August 1st, 1899, to May 3rd, 1900.

Cr.

RECEIPTS.

1899.	£	s.	d.
Aug. 11th.—Balance from last year ..	15	9	6
* Subscriptions and Arrears to May 3rd, 1900 ..	114	14	6
Sale of "Proceedings" ..	1	7	6
" " Spiders of Dorset ..	1	0	0
" " Phalangidea and Chernetidea ..	0	5	0
Donation to Plate Fund from R. S. Clarke, Esq. ..	0	11	0

EXPENDITURE.

1900.	£	s.	d.
Jan. 22nd.—Messrs. Bright and Co., Proc., Vol. II. ..	0	6	4
Feb. 7th.—Meisenbach Co., Engraving, Plates for Vol. XX. ..	6	2	6
" Hannah and Holland, Screens for Museum Library ..	2	15	9
Feb. 28th.—McFarlane and Erskine, Engraving Plate for Vol. XX. ..	4	18	6
Ap. 20th.—Treasurer, Stamps ..	1	13	8
May 1st.—Sime and Co., Bill to date—Advertising and Programmes of 5 Meetings ..	9	6	6
Printing various Forms and Notices, &c. ..	3	16	0
Printing Authors' Copies of Papers ..	6	17	6
Postage of Vol. XX. and some of Vol. XIX. to Members, and Authors' Copies ..	5	0	2
Printing and Publishing 400 Copies of Vol. XX. ..	91	19	0
Balance in hand ..	116	19	2
	0	1	7
	£133	7	6

* NOTE.—Of the above-named sum of £114 14s. 6d., £40 3s. 0d. was subscribed specifically for 1900.

Dorset Natural History and Antiquarian Field Club.

Dr.

HON. SECRETARY'S ACCOUNT from May 1st, 1899, to May 1st, 1900.

Cr.

RECEIPTS.

1899.

May 1st.—Balance from last Account

By Balance from Incidental Expenses at

Meetings at Southampton, Eggardon,

Puddletown, and Mere

£ s. d.

2 2 0

3 7 9

£5 9 9

EXPENDITURE.

1899-1900.—H. Voss, for Meetings on

Dec. 19th, and Feb. 26th

Hon. Secretary's Postages, &c.

Balance in hand

£ s. d.

0 15 0

3 10 8

1 4 1

£5 9 9

Dorset Natural History and Antiquarian Field Club.

Dr.

GENERAL STATEMENT, May 3rd, 1900.

Cr.

RECEIPTS—ASSETS.				LIABILITIES.	
		£	s. d.	£	s. d.
Due from 11 Members, 4 years	..	22	0 0	Balance in favour of Club	..
11 "	3	16	10 0		..
10 "	2	10	0 0		
53 "	1	26	10 0		
253 "	current year		75 0 0		
Cash Balance from 1899	..	..	126 10 0		
	..	..	0 1 7		
			<u>£201 11 7</u>		<u>£201 11 7</u>

NOTE BY HON. SECRETARY.—In consequence of the copies of the Balance Sheet and General Statement which were produced by Rev. O. P. Cambridge and passed at the Annual Meeting on May 8th having been unfortunately mislaid, the above have been copied direct from the Club Account Book.

SPECIAL DONATIONS OF PLATES, PRINTING, &c.,
TOWARDS VOL. XXI.

From HENRY STORKS EATON, Esq.

The Cost of Printing his Report on Returns of Rainfall in Dorset in 1899.

From H. COLLEY MARCH, Esq., M.D.

All the Plates, except two, illustrating his Paper "On Roman Pavements and Intrecci."

From A. POPE, Esq.

The Plates illustrating his Paper on "An Ancient British Trackway."

DONATION TO THE PLATE FUND.

	<hr style="width: 20%; margin: 0 auto;"/>				£ s. d.
R. S. Clarke, Esq.	..	..	..	..	0 11 0

The Club also desires to thank those who have given their time and skill in making the original drawings and photographs for the plates contained in the present Volume.

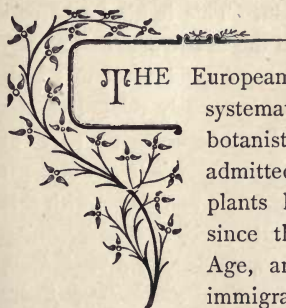


The Influence of
Climatic and Geological Changes
upon the British Flora,

WITH REMARKS UPON THREE NEW DORSET PLANTS, *ERICA*
LUSITANICA, *SPARTINA TOWNSENDI*, AND *SETARIA*
VERTICILLATA.

By J. C. MANSEL-PLYDELL, D.L., F.L.S., F.G.S.

(Read Feb. 26th, 1900.)



THE European Flora has been thoroughly and systematically examined by the most eminent botanists of the last century. It is generally admitted that the majority of the European plants have either migrated or originated since the commencement of the Pliocene Age, and that the original homes of the immigrants must be looked for in Asia or Arctic America. The late Mr. H. C. Watson was the first of our British botanists who attempted to separate the British Islands into provinces, by a line traced from the south coast of England northwards to the Highlands of Scotland, making the line correspond with the borders of the counties, dividing those whose rivers flow into the eastern sea from those

which flow into the western. He then sub-divided these longitudinal portions transversely into provinces, or groups of counties, which together constitute the basin of a principal river. In this manner 18 provinces or groups of counties are traced. Dorsetshire forms part of the Channel Province, and is associated with Wilts, Hants, and Sussex. He separated also the surface into six zones of heat, the boundary between the third and fourth being the line of the practicable cultivation of grain and potatoes, which is equal to the Arctic Circle at sea-level. Very little of the actual surface of Britain falls on the cold side of this line, because it is only mountain peaks that overtop it. The late Professor E. Forbes separated the British Islands into five sections, four of which he restricted to definite provinces, and the fifth, besides claiming for it a large part of the area, he overspreads and commingles with all the others. In No. I.—He includes the mountainous districts of the west and south-west of Ireland, characterised by the presence of a few species belonging to the families Saxifragæ, Ericacæ, Lentibulariæ, Cruciferæ, besides other species, including *Allium Ampeloprasum* *a* *Babingtonii*, which grows wild in this county. They are all natives of Northern Spain. This is his Lusitanian type. No. II.—This flora is found in the south-west and south-east of Ireland, and includes a number of species not met with elsewhere in the British Islands, but is intimately related to the flora of the Channel Islands and the neighbouring part of France, and marks a type of vegetation characteristic of Southern Europe. A number of the plants are found associated with this type in Cornwall and the Southern Counties, such as *Oxalis corniculatus*, *Lotus hispidus*, *Corrigiola littoralis*, *Polycarpon tetraphyllum*, *Erica ciliaris*, *Cicendia filiformis*, *Medicago denticulata*, *Rubia peregrina*. This is Watson's Atlantic type. No. III.—Comprises the south-east of England, where the British Cretaceous rocks are chiefly developed, supporting a number of species, equally common on the opposite coast of France. The entomology of this part of England is influenced by, and in some cases is dependent on, its flora. This forms part of Watson's Germanic

and English types, and is represented in Dorsetshire by *Clematis Vitalba*, *Linum perenne*, *Bryonia dioica*, *Gentiana Pneumonanthe*, *Tamus communis*, *Inula Conyza*. The pulmoniferous mollusc *Clausilia Rolphii*, which I added to the list of Dorset shells last year, is connected with the flora of this province. No. IV.—Includes the mountainous districts of Scotland, Cumberland, and Wales. This flora is more arctic in Scotland than in the other two. It produces *Draba rupestris*, *Astragalus alpinus*, *Sibbaldia procumbens*, *Arctostaphylos alpinus*, *Veronica alpina*, *Betula nana*. This is Watson's Highland type. No. V.—General Flora, Watson's British type. There are some local species which constitute his Germanic, British, and Highland types. The scarcer plants of this section show the line of migration in their advance westward. Excepting *Myosurus minimus*, the Mousetail, none occur in this county. A similar absence is observable among the Vertebrates and Invertebrates; the *Mole*, the *Squirrel*, the *Polecat*, the *English Hare* (*Lepus timidus*), and numerous molluscs are restricted to this side of the St. George's Channel. Forbes considered the Lusitanian flora to be the oldest of the five provinces, and of the Miocene Age, when the North Sea was of smaller dimensions than at present; it did not then touch our present coast-line. By a subsequent enlargement a direct communication was made with the Arctic Sea, occasioned by a sinking of land, through which the North Sea and the Atlantic became connected. Plants could then migrate on dry land without hindrance over France, Spain, and England. The Scandinavian flora, which Sir Joseph Hooker considers to be of great antiquity, was driven south on the approach of the Glacial Age, the survivors of which returned during the succeeding temperate period. During the Pleistocene Age there is evidence of a period of cold succeeded by a milder, and of sufficient length for the reappearance of a temperate flora. It may be well to bear in mind that the climate was tropical and subtropical at the commencement of the Tertiary period, and gradually became more temperate towards its termination. When the Red Crag of the Eastern Counties was being deposited the temperature was much lowered, and during the succeeding

Glacial Age the greater part of the British Isles was under perennial snow; but life was not entirely extirpated, there was a survival of some portion of it. It is inconceivable that the whole of the south of England was under an ice-cap, but that there was an area left capable of supporting a considerable fauna and flora. Dr. March, in his exceedingly interesting paper, read before the Members of the Club last year, adduced proofs which he considered sufficient evidence that Portisham and other parts of the south of England had been glaciated. Mr. Clement Reid shows that Ireland was entirely so during the Glacial Age. In a paper read before the Members of the Geological Society in 1850 Mr. R. A. C. Austen proposed to reduce the existing fauna and flora to two periods of origin, one of which came in after the deposition of the Glacial Drift. The other was of a local character in districts insulated by the Pleistocene Sea, and whose floras have outlived all subsequent changes. This is equally opposed to Mr. Clement Reid's views.

A Russian Naturalist, M. Bogdanow, suggests that there were two distinct migrations of northern animals to Central Europe, from the north and the east, and that the *Reindeer*, the *Arctic Hare*, the *Willow Grouse*, &c., whose remains have been found in the Pyrenees, are distinct from the Siberian element, which invaded Europe during the Glacial Age. He maintained that the former had quite a distinct origin, and came from Scandinavia. Our friend and distinguished geologist, Professor Boyd Dawkins, gives a chart in his "Early Man in Britain" representing the geography of Europe during the Pleistocene Age, indicating the extent of an eastern and a southern migration during that period. At the close of the Pliocene Age a very close connection with Asia was caused by an elevation of land, and the British Isles became the feeding-grounds of the animals whose remains are found in the Forest-bed of the Eastern Counties and the Dogger Bank, off Yarmouth. He considered that the migration of the southern animals was contemporary with the westward migration of the eastern group. Upon arriving in Europe the southern forms went north in the summer, as did the eastern. The African

animals of the southern migration into Europe show that there was a land connection between the two Continents. The Straits of Gibraltar were not then in existence when the *African Elephant* ranged as far north as Madrid, and the *Caffre Cat*, *Lynx*, and *Spotted Hyæna* caught their prey on the Spanish Peninsula. Thus Pleistocene Europe had a connection with Africa on the south, and with Asia on the east, extending as far west as Britain and Ireland. The soundings which have been made indicate that the British Isles and Ireland formed the uplands of a plateau, now submerged to the extent of 100 fathoms on the Atlantic side. Immediately to the west of this line the sea deepens so suddenly that the depth increases rapidly to 2,000 fathoms. By a 100 fathom rise the British Isles would be united to the Continent, and the Thames and the rivers on the eastern coast would be united with the Elbe and the Rhine, forming a river which emptied itself into the North Sea. On this point Professor Boyd Dawkins says "The Straits of Dover would then be the watershed between the valley of the German Ocean, as it may be termed, and that of the English Channel, in which the Seine, the Somme, and other French rivers joined those of the south coast of England, and ultimately reached the Atlantic." The quantity of bones of the *Mammoth*, the *Woolly Rhinoceros*, the *Horse*, the *Reindeer*, the *Spotted Hyæna*, and other animals which are continually dredged up by the fishermen in the German Ocean is almost incredible. Forbes considered that the presence of South European plants in the south-west of Ireland was in favour of a survival, as there had been no land connection between Ireland and the south of Spain since the Glacial Age. On the other hand Mr. Clement Reid considers it may be assigned to other causes, and shows how plants can distribute themselves by natural means and contrivances, such as birds conveying seeds in their feathers, or mingled in the mud on which they had trodden just before taking their migratory flight. In his recently published volume "On the Origin of the British Flora" Mr. Clement Reid says "The autumn migration of mammals which takes place when nearly all the seeds are ripe

would have been southward in Britain, and could only have carried them in that direction. Wading and swimming birds, which commonly come to Britain from the north and from the east in autumn, leaving the colder districts at a time when the seeds are ripe, would be the means of bringing the smaller ones to this country.

In a comparison of the plants of this country with those of the Continent it is clear that both were conterminous at the time of distribution. Those species which have a northern tendency with us, have the same on the Continent. The characteristic plants of our mountains and high summits grow on similar altitudes on the Continent. On the other hand the delicate plants of the south-west approach us from France and the Spanish Peninsula. Mr. J. G. Baker points out that in studying the distribution of our flora, it was accomplished before the land and sea acquired their present relations, and considering how long a time has elapsed since Great Britain has been separated from the Continent, and the absence of endemic types from its flora, it is a strong argument against the idea of a rapid spontaneous differentiation of specific types in plants.

The submersion which was supposed to have occurred during the latter part of the Glacial Age affected the greater portion of the British Isles, and when they became Continental the old fauna was succeeded by a migration from the Continent; sufficient time, however, had not elapsed to complete it before another subsidence, which cut off the further influx of purely terrestrial animals and plants, leaving us without the number of species which our variable climate and varied surface would lead us to expect. To this cause must our comparative poverty in mammalia and reptiles be ascribed. Germany possesses nearly ninety species of land mammalia, Scandinavia about sixty, while Britain has only about forty, and Ireland twenty-two; as the depth of the Irish Sea is somewhat greater than the German Ocean, the connecting land would have a shorter time for their migration. This has been the cause of the comparative

zoological poverty in Ireland, which attains its maximum in reptiles, as shown by the following figures :—

Belgium has 22 species of Reptiles and Amphibia.

Britain	13	„	„	„
Ireland	4	„	„	„

There appear to have been two distinct migrations, one from the north to Central Europe of the *Reindeer*, the *Arctic Hare*, the *Willow Grouse*, &c., the other from the east through Siberia. Both of them took place during the Glacial period. American geologists recognize the existence of two well-marked varieties of the *Reindeer* (*Caribou*), a small one with rounded antlers, the other, which is larger, has antlers more or less flattened. The eminent French palæontologist, M. Gervais, was the first to point out that the remains of the *Reindeer* from the north of France differed from those found in the south. His compatriot, M. Lartet, referred the southern European remains to the *Barren Ground Caribou*, and those from the deposits of Central Europe to the Siberian variety of the present day, which he considered to be allied to the *Woodland Caribou* of North America. Mr. Andrew Murray, in his work on "The Geographical Distribution of Mammalia," reviews these *Reindeer* and their claims to be regarded as varieties or species. He speaks of the Lapland *Reindeer* as differing from the Siberian in the character of the horns, which, in common with the two American forms, he thought to be of one stock, modified by a difference of climate, and conditions of existence. He points out, too, that the difference between the Siberian and the Lapland *Reindeer* consists in the greater length of horn and number of tines, with a general disposition to palmation on the part of the former. The two forms appear mixed in the British deposits. The round-antlered form seems to have arrived in Europe long before the other. Both probably came over by two different routes. Dr. Murray speculates upon a former land communication between North America, Greenland, and Spitzbergen.

According to recent surveys a high sub-marine plateau, with a steep fall of 1,000 fathoms towards the Atlantic, begins from Northern Norway, and is continued as far as Spitzbergen. Several islands arise from this plateau and may be viewed as the remains of a sunken land. There was probably an interrupted contemporaneous migration during the latter part of the Tertiary Age over a direct connection between Greenland, Iceland, and the Faroe Islands.

A series of transverse sections from the coast of England to that of France, drawn north and south, will show that the Channel area is one of depression, and that on either side, the sedimentary strata have an inward dip. Much of the irregularity of the present outline of the Channel is due to the nature of the beds which occur along it, good illustrations of which may be seen in the deep bay between Berry Head and Portland, consisting of sands and marls. The process by which masses of solid materials can be pared off parallel with the sea-level is due to the action of wind, or surface waves. The whole area had at one time a higher level, as proved by numerous instances, where old forest-ground passes beneath the present sea-bed along the coast. As proximity to the sea is unfavourable to forest-growth we may take it for granted that the conditions of the land at the forest-period were continental, indicated, too, by the great size and height of the trees, none of which have their usual habitats along the seaboard. We may safely conclude that the forest-area previous to the Pleistocene age, was in the condition of dry land, when the British Islands were connected with France on the south and with Ireland on the west, and of a far greater amount of elevation than at present. At this period we find a wide-spread coniferous vegetation across the British Isles from the coast of Norfolk on the east to Cardigan on the west, of which *Pinus sylvestris* and *Abies excelsa* (the Spruce) are of some interest, as the former is no longer indigenous in the British Islands. It is recorded in submerged forests of the Neolithic age, and at the base of peat-mosses, nearly throughout Britain and Ireland; Bovey Tracey, Devon; Hoxne, Suffolk (Late Glacial);

Cromer Forest-bed (Preglacial), but is not found in the British Interglacial Deposits. During Neolithic times it seems to have been one of our commonest trees. After the Neolithic Period it disappeared from the South of England, and has only been recently re-introduced, now it spreads itself from seedlings. Mr. Clement Reid, from whom I am quoting, says it appears to be unable to re-establish itself here, now Britain is separated from the Continent. The inability of the Spruce-fir to re-establish itself is also difficult to be accounted for. It is found in the Cromer Forest-bed, but unknown in the later British Deposits. There is nothing in the modern distribution of this fir to suggest that it is unsuited for our present climate, although it does not tend to spread from seedlings like *Pinus sylvestris*, and *Pinus maritima*.

I have already spoken of the probability of the preservation of some of our plants and animals during the Glacial Age, and that there was a survival of some portion of the Preglacial plants. It is generally admitted that the ice-cap did not extend south of London, and that there was an area left sufficient for the support of a considerable number of Preglacial plants and animals. In Switzerland a temperate flora is found in close connection with glaciers. We may be led, therefore, to conclude that the climate of the south of England during the Glacial Period did not annihilate all previous life. Forbes thought that there was a now sunken Atlantis, a continent which occupied a part of the Atlantic basin in Miocene times. It is well ascertained that the European and American floras were the same at that period, and that their types continue still in America, but not in Europe. Mr. Andrew Murray remarks that the bearing of these facts is in favour of an Atlantis, but it is possible that a "north-west passage" sufficient for the intercommunication of the two continents may have existed, although not directly across the Atlantic, and it may have been by Greenland. The climate at the Poles at that time was genial, frost and snow were unknown; the south of Iceland, and several parts of the Arctic lands, such as Disco Island Lat. 70 N., although now treeless, were densely

wooded in the Tertiary Period. Forbes cited the Gulf-weed, *Sargassum bacciferum*, in support of his theory of a lost Atlantis, which is met with in mid-ocean. Sir Joseph Hooker decides it to be an abnormal condition of *S. vulgare*, a coast-line plant growing on vertical rocks, and within a very limited range, and accounts for its abnormal variety by the submergence of an ancient line of coast, that it is not propagated by fructification, but by breakage, the young shoots pushing out from the detached fronds becoming matured. He proposed to call it *Sargassum bacciferum*. It seems, therefore, not an improbable conjecture that the Gulf-weed indicates that land had been submerged, and that its presence must always be taken into account in any speculations on the past changes of the distribution of land and sea. In none of the strata of a date anterior to the Glacial Age have the remains of a boreal plant or animal been met with. Life adapted to the rigours of cold appears to have been developed for the contingency. Mice and rats abound in the tropics, but are nowhere found in the Arctic Circle, where Voles, which are absent in the tropics, abound. They both meet in the warm temperate regions. Mice are found in Tertiary beds, but not the Vole, until the subsequent deposition of the diluvium at the commencement of the Glacial Period. Nothing which remained in the Northern Hemisphere could then escape alteration, except whatever moved southward. Many geologists view the polished and scratched rock-surfaces beneath the boulder-clay as evidence of a former extension of land-ice, and that the counties of Kent, Surrey, Sussex, Hants, Dorset, Somerset, Devon, and Cornwall, and a part of Wiltshire were comparatively free of it. In temperate latitudes ice-sheets and glaciers, unlike those in Arctic regions, terminate inland, as is the case in Switzerland, the Himalayas, and in America. During the alterations of warm interglacial periods (how many they were we do not know) a return of animals and plants northward took place.

That there was more than one migration is shown by the Boulder Clay, an unstratified mass charged with angular,

scratched, and polished stones, intercalated by deposits of sands and gravels denoting warm periods, when vegetation was luxuriant, and beds of lignite were laid down sufficiently thick to be worked for coal. The trees are principally *Willows* and *Alders*. *Oaks*, too, are frequently found rooted in the subject glacial clays. These intercalated beds yield mammalian remains, *Mammoth*, *Ox* (*Bos primigenius*), *Irish Elk*, and *Horse*. In the Swiss deposits of this age are found the remains of *Elephas antiquus*, *Rhinoceros megarhinus*, *Bos primigenius*, *Cervus elaphus* (*Red-deer*), and the *Cave-bear*, of which all are extinct except the *Red-deer*. Dr. A. Russell Wallace, in his "Island Life," quotes the late Professor Asa Gray, who points out that hundreds of species of trees and shrubs which still flourish in America are now completely wanting in Europe. There is good reason to believe that many were exterminated elsewhere by the rigours of the Glacial Period owing to being cut off from their southern migration by the Alps and the Mediterranean, whereas in Eastern America and Asia, the mountain chains running in a northern and southern direction, there was nothing to prevent the flora from being preserved by a southern migration to a milder region.

We have now arrived at a point favourable for the examination of the age of the flora and fauna of the British Isles. It is generally considered that the Lusitanian group is the oldest, and that it arrived before the Glacial Age, and that the Eastern or Siberian was the latest. It arrived in Germany from the east, after the deposition of the Lower Boulder Clay, and therefore after the former portion of the Glacial Period had passed away. It makes its first appearance in the Forest-bed of Norfolk. On this supposition the other migrations must have arrived in Great Britain during the earlier part of the Glacial Age. Relics of an Arctic Flora have been met with at Bovey Tracy in Devonshire, comprising *Betula nana*, *Salix cinerea*, *Arctostaphylos uva-ursi*, which are now natives of the British Islands. We have no less than twenty-six species of the Siberian mammals which came as far west as the British Islands. Nine of these now inhabit Great Britain. We cannot obtain any evidence as to the geographical

distribution of British plants, on account of a break in the series of the Tertiary strata. The Middle Tertiary Flora can be favourably studied in the Oligocenes of Hampshire ; it is sub-tropical, and allied to our present-day flora. During the succeeding Miocene Period there appears to have been a period of earth-movement, when the surface configuration of Great Britain was completely changed. During the subsequent Pliocene Period there is evidence of a slow refrigeration which culminated in the Glacial Age. The strata of the older Pliocenes in Great Britain as yet discovered are marine and laid down in a warm sea. It is only in the later deposits we find a copious land fauna and flora.

The history of the plants now inhabiting Britain commences with the Cromer Forest-bed, consisting of a series of estuarine and lacustrine strata. At that period the Straits of Dover had not been cut through, England was then connected with Belgium and Holland by a wide alluvial plain. Dewlish, in this county, has yielded bones of the Pliocene Elephant, *Elephas meridionalis*. Owing to the close proximity of the deposit to the surface the larger bones, such as the femur, humerus, scapula, pelvis, tusks and molars only are preserved; all the rest have been entirely obliterated by atmospheric agencies, which will account for the absence of any evidence of the contemporary fauna and flora. The age of this deposit is earlier than that of the Forest-bed, and when the climate was much warmer. The plants and animals of the Forest-bed indicate a climate similar to that of the present day. The presence of *Najas marina* in the Forest-bed suggests that this plant is a survival, and was not exterminated by the ice, and then re-migrated from its new home back to one spot in Norfolk only, in Hickling Broad. Although the Lusitanian group in Ireland is represented by only a few species, they play an important part in the vegetation of that region, and are all found in the Spanish Peninsula, notably in the Asturias. A great number of the species belonging to the South-Western British flora appear to have originated in South-Western Europe, or at least to have spread over our Islands from that quarter; their home was probably in a warm, damp climate. At the time of

their migration, the temperature of these islands was much higher than it is at present. Physical changes, climatal alternations, and waves of migrations, make the exact successional order of the deposits uncertain ; but a definite historical record is being gradually built up by a comparison and correlation of the numerous records. The work has been greatly facilitated by a detailed examination of extensive areas. There are some British botanists who ignore the essential differences between a varietal form due to local conditions, and a true sub-species (for many of our so-named sub-species have no more claim to separation than luxuriant garden specimens). For instance the interminable forms of the *Water-crowfoot* and the *Lesser Spearwort* growing in a well-manured horse-pond have no claim to be considered to be sub-species unless found under more natural conditions. Mr. Clement Reid and Mr. Edmund Baker examined *Saxifraga umbrosa* at its well-known habitat, Dingle Promontory with its allied forms, each occupying well-defined areas, showing well-marked off-type characters, and in proportion as more and more of the patches were examined, these distinctions melted away, so that finally nearly a complete series of intermediates was obtained, the extreme at one end appearing to connect it with *Saxifraga Geum*, growing in the same area. They were evidently not hybrids. Botanical works are full of anomalies of this sort, often due to a desire to announce the discovery of a new form. No family has suffered more in this direction than the Rubi, which happens to possess a remarkable power of variation.

The Lusitanian forms which originated in the Spanish Peninsula were able to make their way to North Africa, which had then a land communication with Spain ; this may be inferred by so many of the groups growing in Morocco, and reaching from the coast to the Atlas Mountains, whereas none of the characteristic Lusitanian plants are found in Tunis, where the Oriental section of the British Flora is represented by many species. The two plants of the Lusitanian group especially cited by Forbes are *Arbutus Unedo* and *Euphorbia hyberna*. It has

been already shown that the Mediterranean must have had communication with the Atlantic since the Miocene Age. Sir Joseph Hooker and his companion, the late Mr. J. Ball, in their "Spilegium Floræ Maroccanæ" show very distinctly that of 820 species of the great Mediterranean Flora which extends from the Indus to the Atlantic Islands, 96 are common to Spain and Morocco. Of these nearly all are found in the neighbourhood of Tangiers and Tetuan. They succeeded in making a very large collection of plants, and among them a considerable number of new species in the area of the Great Atlas, but no new genera. The most singular point in Sir Joseph Hooker's opinion about the Great Atlas flora was the presence of a large number of the common species of Central Europe, coupled with the fact that they were unable to adapt themselves to different climatal conditions, and that many of them have no nearer habitation than the mountains of Central or Southern Spain. He found in the northern extremity of Morocco together with the Mediterranean flora the infusion of another element, which he denominated the Peninsula flora. Its limits do not seem to extend more than 30 or 40 miles south of Tangiers and Cape Spartel. Nearly all the 96 species mentioned above are common exclusively to Morocco and Spain, having been found in the neighbourhood of Tangiers and Spain. He sums up his interesting preliminary observations on the flora of Morocco thus : " The conclusion to which I am led by a consideration of the facts, is the same that I have derived from rather long observations of the mountain vegetation of Central and Southern Europe, namely, that it is impossible to explain the facts without admitting that a large portion of our present flora is relatively very ancient, and that the species had assumed their present characters at least as early as the Miocene Epoch."

The discovery last year of *Erica lusitanica*, *Spartina Townsendi*, and *Setaria verticillata* growing wild in this county is of special interest on account of their association with the Peninsula flora.

I. *Erica lusitanica*, Rudolph (1799), non. Lin. *E. arborea*, Brot., non. Lin., ex-parte (1804). *E. polytrichifolia*, Salisb. (1802). *E. codonodes*, Lindl. Bot. Reg. t. (1698). Inflorescence forming a panicle from eight to twelve inches long, peduncle shorter than the corolla, which is sub-campanulate, constricted at the base, pale rose-colour, and larger than that of *E. arborea*, Lin., longer than the divisions of the sepals, anthers furnished with two equally long filiform hairy appendages, ovary glabrous; leaves verticillate, linear, involute, glabrous, with minute setæ, branches upright, stem greyish, downy, composed of simple hairs; stem from 3—6 feet high. Perennial, flowering as late as November and January. It grows vigorously on the lovely grounds of Lord Eustace Cecil at Lytchett Heath, spreading itself considerably from year to year, and seeding freely. I hope next year to ascertain the limits of its extension.

Hab., Lytchett Heath, England, and La Teste de Buch, near Bayonne, France. These are its only recorded stations outside the Spanish Peninsula, where there are records of it from Bilboa in the north; the mountains of Castile, Central Spain; and two in Andalusia; four in Portugal. The above census is taken from Colmeiro's splendid "Topographical Catalogue of the Plants of Spain, Portugal, and the Balearic Isles," consisting of five royal octavo volumes of 3,419 pages.

Erica lusitanica is closely allied to *E. arborea*, from which it is difficult to be distinguished, they differ, however, sufficiently to justify a specific separation. *E. arborea* differs in the stem and branches being clothed with woolly down, composed of short and long hairs, the long hooked and branched, the flower-bearing branches shorter than those of *E. lusitanica*, the stems and branches of which are less profusely downy, and furnished with setæ.

E. arborea is abundant throughout the Spanish Peninsula from the sea-level to the altitude of more than 1,000 feet. It is found in every province from north to south, and, taking Colmeiro's list as a guide, it appears to have a wide distribution. It grows on the southern side of the Eastern Pyrenees near

the coast, at Gerona. I have gathered it on the northern side, at Amilie les Bains at a considerable altitude, under the shadow of Mont Canigou, the highest mountain of the range, and several miles inland. It follows the Mediterranean coast to Narbonne, Montpellier, and Cannes, crosses the Italian frontier, traverses East and West Liguria, Istria, Dalmatia, Greece, and Turkey. Sir Joseph Hooker found it at Mount Djebel, near Tangiers, also at Tetuan. It extends as far west as the Canary Islands.

II. *Spartina Townsendi*, H. and J. Groves (1881). Differs from *S. alterniflora* in its leaves being shorter than the spike, the lamina from five inches to one foot long, and jointed to the sheath, ligule fimbriate instead of bristle-like; glumes ciliated. It has several of the characters of *S. stricta*, and appears to be intermediate between both. *S. Townsendi* grows in company with *S. alterniflora* on the mudflats of Southampton Water. It is curious that it had evaded the notice of botanists until last year (1899), when I found it in some abundance in one of the creeks of Poole Harbour.

The genus *Spartina* has a wide range both in the Old and New Worlds. *S. stricta* is met with on the coasts and estuaries of France and England, but not inland. Colmeiro, however, notes it in the neighbourhood of Madrid. Asa Gray cites six American species, two of which, *S. stricta* and *S. alterniflora*, are European. It has not been yet found in Germany or Scandinavia. Its most northern limit appears to be the Netherlands. Sir Joseph Hooker found *Spartina stricta* in North Africa, near Tangiers.

Setaria verticillata, Beauv. This grass, which Mr. H. J. Goddard found at Upwey last year, does not reach farther north than Lat. 58 N. It has a wide European range, the Spanish Peninsula, the Eastern Pyrenees, Central and Southern Russia, Hungary, Moldavia, Crete, the Ionian Islands, &c. Sir Joseph Hooker found it near Tangiers, and at Mazagan, on the north-west coast of Africa. Asa Gray reports it from America, and Mr. Hemsley, from Burmah. It may have been introduced with seed.

Since writing this paper I find from Lord Eustace Cecil that he planted a single shrub of *Erica lusitanica* some years ago in the Manor Grounds of Lytchett Heath, which is now the centre of several hundreds of others, which have spread themselves over a considerable area. This is only one of many instances of plants which have been introduced into a new locality either accidentally or by human agency under conditions favouring a permanent occupation.





On New and Rare British Spiders.

By Rev. O. PICKARD-CAMBRIDGE, M.A., F.R.S., &c.

(Read May 8th, 1900.)

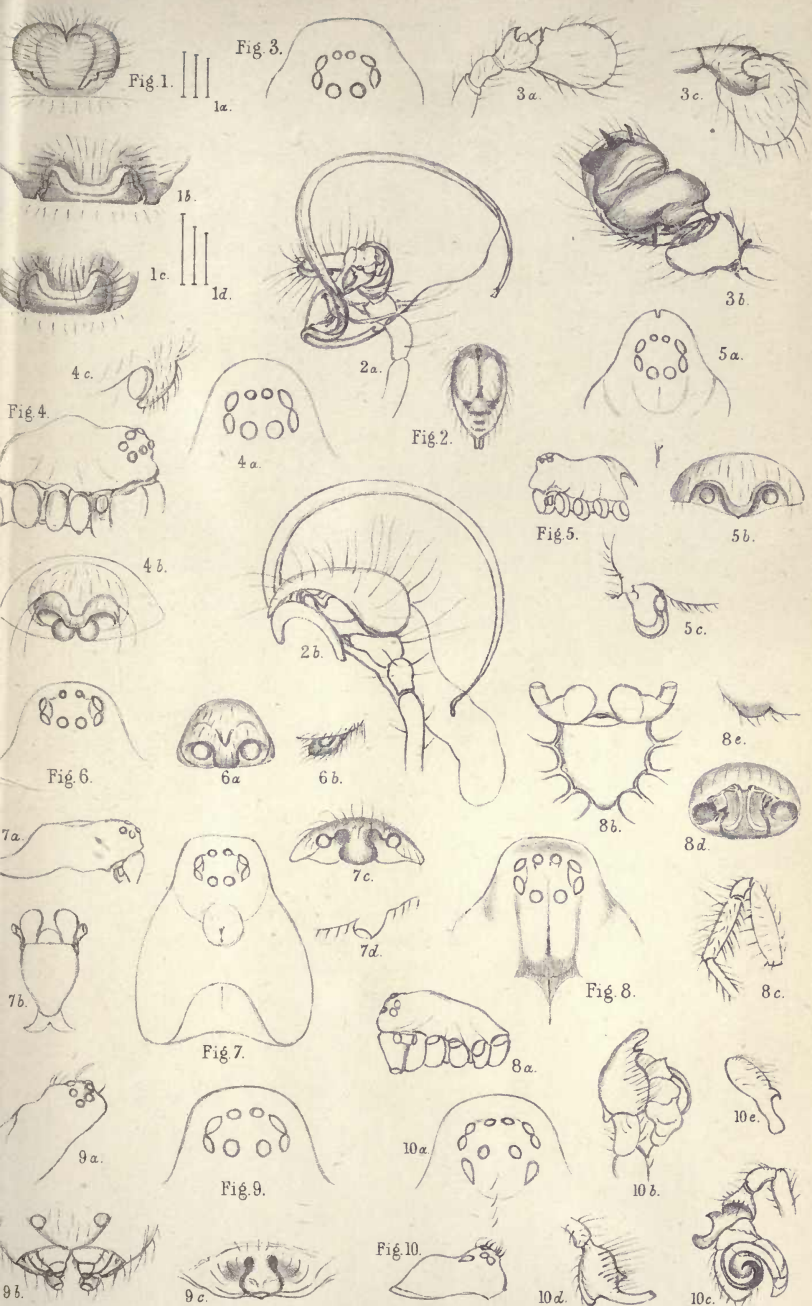
[WITH PLATE.]



ALTHOUGH my own outdoor work among the Spider tribes has been limited during the past year, the help and work of some of my friends have added some important items to our list of indigenous species ; besides which I am now describing for the first time some examples of the female sex of several species found at Bloxworth some years ago, but laid aside for the time in hopes of the males being met with. Thus the additions to our British list, since my last communication to the Field Club, consist of five species not before recorded as British, and eight species new to science. Of those new to Britain one fine species—*Tegenaria pagana*, C. L. Koch—was sent to me by Mr. F. P. Smith, by whom it was found near Birmingham ; another, *Cnephalocotes pusillus*, Menge, I received for examination from Mr. G. H. Carpenter, of the Science and Art Museum, Dublin. This spider was found near Southport, in Lancashire, a grand locality and the scene of many hours pleasant and successful Spider-hunting in the years

EXPLANATION OF PLATE.

- Fig. 1. *Tegenaria campestris*, C. L. Koch-Cambr. Female. Genital aperture.
1a, natural lengths of three examples.
- „ 1b. *Tegenaria pagana*, C. L. Koch-Cambr. Female. Genital aperture.
„ 1c. „ „ „ „ From another example.
„ 1d. „ „ Natural lengths of three examples.
- „ 2. *Tetrilus arietinus*, Thor.-Cambr. Male. Abdomen. 2a and 2b,
palpus in two positions.
- „ 3. *Sintula fausta*, Cambr. Male. Eyes from above and behind. 3a and
3c, palpus in two positions. 3b, palpus shewing palpal organs.
- „ 4. *Sintula nescia*, Cambr. Female. Cephalothorax without legs or palpi.
4a, eyes from above and behind. 4b, genital aperture in front.
4c, ditto in profile.
- „ 5. *Sintula prominens*, Cambr. Female. Cephalothorax in profile. 5a, eyes
from above and behind. 5b, genital aperture in front. 5c, ditto in
profile.
- „ 6. *Sintula nigro-tibialis*, Cambr. Female. Eyes from above and behind.
6a, genital aperture from in front. 6b, ditto in profile.
- „ 7. *Eupolis excavata*, Cambr. Female. Cephalothorax and eyes from
above and behind. 7a, ditto in profile. 7b, maxillæ, labium, and
sternum. 7c, genital aperture from in front. 7d, ditto in profile.
- „ 8. *Susarion neglectum*, Cambr. Female. Caput and eyes from above and
behind. 8a, cephalothorax in profile. 8b, maxillæ, labium, and
sternum. 8c, portion of leg of 1st pair. 8d, genital aperture from
in front. 8e, ditto in profile.
- „ 9. *Gongylidium gibbum*, Cambr. Female. Eyes from above and behind.
9a, portion of cephalothorax. 9b, hinder extremity of abdomen
underside, showing spinners and spiracular opening. 9c, genital
aperture from above.
- „ 10. *Evansia merens*, Cambr. Male. Cephalothorax in profile. 10a, eyes
from above and behind. 10b and 10c, palpus and palpal organs in
two positions. 10d, cubital and radial joints of palpus. 10e, radial
joint in another position.



1858-59. A third species new to the British list is *Tapinocyba pallens*, Cambr., received from Mr. William Evans, of Edinburgh, by whom it was found near Lanark, Scotland. The fourth is of a species inhabiting the nests of *Formica rufa*, *Thyreosthenius biovatus*, Cambr., a female was found in a nest of that ant in Guestling Wood near Hastings, Sussex, and kindly sent to me by Mr. Horace Donisthorpe, one of our most painstaking and successful "coleopterists." Both sexes have also since been received from Mr. Donisthorpe, found in ants' nests at Oxshott. The 5th species, new to Britain, is an exceedingly remarkable one. *Tetrilus arietinus*, Thor., found in the nests of *Formica rufa* at Oxshott near London, and also sent to me, by Mr. Donisthorpe. From Mr. Evans I have received four of the species new to science. On one of these I have felt obliged to base a new genus—*Evansia*. It was found by Mr. Evans at Glenfarg, Scotland. Three other new species found by Mr. Evans are *Sintula fausta* at Glenfarg, *Sintula nescia*, and *Gongylidium gibbum* at Comrie. The remaining four new species are those found by myself at Bloxworth some years ago, as I have above noted. On two of them I have based new genera. Whether these will stand the ordeal of a thorough and systematic revision of the numberless species of the great group to which they belong, it is not easy to say. These four are *Sintula prominens*, *Sintula nigrotibialis*, *Eupolis excavata*, and *Susarion neglectum*. I should mention here that my friend Mr. Carpenter has what he believes to be a new species of *Agelena*, found at Southport in Lancashire, and he proposes shortly to describe and figure it. I can here say no more of it, as I have not seen the specimen.

LIST OF NEW AND RARE SPIDERS FOUND IN 1899.

FAM. DYSDERIDÆ.

Dysdera crocata, C. L. Koch.

I have received this Spider from the Rev. R. J. Pickard-Cambridge (St. Leonard's-on-Sea), from Mr. F. P. Smith

(Norfolk), from Mr. W. Evans (Scotland), and from Mr. H. J. Moule, as well as from Mr. Prideaux (Dorchester). The range of this species is thus a very extended one, but I have not yet known it to occur in anything like abundance excepting once, many years ago, near Salisbury.

FAM. DRASSIDÆ.

Drassus macer, Thor.-Cambr.

An adult male was sent to me from Kew in June, 1899, by Mr. Nicholson, Sub-Curator of the Royal Gardens.

Prosthesima Latreillii, Sim.

An adult female from Mr. Nicholson (Kew).

Clubiona neglecta, Cambr.

An adult male from Mr. Nicholson (Kew), and another from the Rev. E. A. W. Peacock, Cadney, Lincolnshire.

Chiracanthium lapidicolens, Sim. = *C. nutrix*, Westr.-Cambr.

An adult female, from Mr. F. P. Smith, Norwich.

FAM. AGELENIDÆ.

Tegenaria pagana, C. L. Koch. Die. Arachn. viii., p. 31, pl. 262, figs. 612, 613.

An adult female, from Mr. F. P. Smith, found near Birmingham, in the Autumn of 1899. This species is nearly allied to *T. campestris*, C. L. Koch-Cambr., but is larger. It has not before been recorded as British.

Tetrilus arietinus, Thor., Syn. Eur. Spid., p. 165. Sub. *Cryphoea arietina*.

Adult and immature males of this spider were found by Mr. Horace Donisthorpe, in the nest of *Formica rufa*, at Oxshott, in Surrey. It is an exceedingly remarkable species, from the great development of the palpal organs in the adult male, and is a fine addition to the list of our indigenous spiders.

Cryphoea diversa, Cambr.

An immature male of this spider was also received recently from Mr. Donisthorpe. It was found by him in a nest of

Lasius fuliginosus at Oxshott. The only example I have before seen of it is the type of the species (an adult female) found some years ago by Mr. F. O. P.-Cambridge near Carlisle running on old railings.

FAM. DICTYNIDÆ.

Dictyna variabilis, C. L. Koch.

Received from Mr. George Nicholson, Kew.

FAM. THERIDIIDÆ.

Lithyphantes corollatus, C. L. Koch.

This pretty species continues to occur in some abundance in various spots on Bloxworth Heath.

Leptyphantes pallidus, Cambr.

An adult female, received from Mr. A. Smith, of the Grimsby and District Naturalists Society.

Leptyphantes nebulosus, Sund.

Received from Kew (Mr. George Nicholson), and from Mr. Frank P. Smith, Norwich.

Porrhomma microphthalmum, Cambr.

An adult male, from Mr. W. Evans, near Edinburgh.

Porrhomma apertum, Cambr.

An adult female found on Bloxworth Heath.

Tmeticus concinnus, Thor.

From Scotland (Mr. W. Evans) and from Norwich (Mr. Frank P. Smith).

Tmeticus reprobus, Cambr.

Both sexes, from Mr. W. Evans, near Aberdeen.

Tmeticus expertus, Cambr.

Adult males from Norwich (Mr. Frank P. Smith).

Sintula oblivia, Cambr.

An adult male, among grass roots on the lawn, Bloxworth Rectory, in July, 1899.

Sintula Frederici, Cambr.

An adult male, at Birdlip, Gloucestershire, in June.

Sintula prominens, sp. n. (p. 28 postea).

An adult female, among heather, Bloxworth.

Sintula nigrotibialis, sp. n. (p. 29 postea).

An adult female, among heather, Bloxworth.

Sintula fausta, sp. n. (p. 30 postea).

An adult male, from Glenfarg, Perthshire, Mr. W. Evans.

Sintula nescia, sp. n. (p. 32 postea).

An adult female sent to me from Comrie, in Scotland, by Mr. W. Evans, by whom it was found in April, 1900.

Gen. nov. EUPOLIS (p. 26 postea).

Eupolis excavatus, sp. n. (p. 27 postea).

An adult female, among herbage in a wood, Bloxworth.

Gen. nov. SUSARION (p. 35 postea).

Susarion neglectum, sp. n. (p. 36 postea).

An adult female among heather in a Fir Plantation, near Bloxworth.

Gongylidium tuberosum, Bl.

Both sexes adult from Chasetown, near Walsall (Miss Ellen Astbury).

Gongylidium gibbosum, Bl.

Adult males from Mr. George Nicholson, Kew.

Gongylidium gibbum, sp. n. (p. 33 postea).

An adult female received from Mr. W. Evans, by whom it was found at Comrie in Scotland.

Erigone promiscua, Cambr.

An adult male from St. Leonards-on-Sea, Sussex (Rev. R. J. Pickard-Cambridge).

Entelecara Thorellii, Westr.

An adult male received from Mr. W. Evans, by whom it was found on Bavelaw moss, near Edinburgh. This is only the second example I have ever seen. Mr. G. H. Carpenter records two examples of it from Ireland, "List of Irish Spiders," Proc. R.I. Acad., 1898. I have not seen these last specimens.

Troxochrus scabriculus, Westr.

An adult male from Southend-on-Sea (Mr. Frank P. Smith).

Cnephalocotes obscurus, Bl.

An adult male from Glenfarg, Perthshire (Mr. W. Evans).

Cnephalocotes pusillus, Menge-Cambr., Proc. Zool. Soc., Lond., 1872, p. 753, pl. lxx., fig. 1. Sub. *Erigone sila*, Cambr.

An adult male found at Southport, Lancashire, by Mr. Randall Jackson, and sent to me for examination by Mr. Carpenter. This species had not before been found in Britain.

Cornicularia vigilax, Bl.

Males received from Southport, where it was found in some abundance in April last by Mr. Cecil Warburton. I have hitherto only met with it at rare intervals.

Gen. nov. EVANSIA (p. 37 postea).

Evansia merens, sp. n. (p. 38).

An adult male from Mr. W. Evans, found at Glenfarg, Perthshire.

Tapinocyba pallens, Cambr., Proc. Zool. Soc., Lond., 1872, p. 753, pl. lxx., fig. 8. Sub. *Erigone pallens*.

An adult male from Mr. W. Evans, found near Lanark, Scotland. This is its first record as a British spider.

Diplocephalus Alpinus, Cambr.

Examples of this species have again been received from Mr. W. Evans, from Scotland, and Mr. Carpenter tells me he has received one from Southport, Lancashire, whence I have also myself lately received it from Mr. Cecil Warburton.

Diplocephalus speciosus, Cambr.

Adult males from Mr. W. Evans, Berwickshire.

Mr. Carpenter, in "List of Spiders of Ireland," 1898, Proc. Roy. Ir. Acad., p. 163, speaks of this species as widespread in Ireland. I have not seen any of the Irish specimens.

Diplocephalus Beckii, Cambr.

An adult male from the neighbourhood of Edinburgh (Mr. W. Evans).

Thyreosthenius biovatus, Cambr., Proc. Zool. Soc., London, 1875,
p. 215, pl. xxix., fig. 22. Sub. *Erigone biovata*.

An adult female, found in the nest of *Formica rufa* in Guestling Wood, near Hastings, Sussex, was sent to me lately by Mr. Horace Donisthorpe. This spider appears to be a regular inhabitant of the nests of the Ant, though I believe the adult males are found wandering about at times.

This is the first record of the species as British. Mr. Donisthorpe has since also sent me adults of both sexes, from nests of the same ant, from Oxshott, in Surrey.

Ceratinella brevipes, Wid.

Adults of both sexes from near Lanark, from Mr. W. Evans.

Ero tuberculata, C. L. Koch.

Adults of both sexes found by Mr. Cecil Warburton in the New Forest in September, 1899. Two examples only had been before recorded as British, one near Wokingham, the other at Bloxworth, both many years ago.

FAM. ULOBORIDÆ.

Uloborus Walckenaerius, Latr.

Mr. Cecil Warburton found this spider in September, 1899, in the New Forest, where it was first taken by myself in 1858. It has only been, as yet, found in one other British locality—near Wokingham.

FAM. EPEIRIDÆ.

Epeira lutea, C. L. Koch.

An example was taken in the New Forest by Mr. Cecil Warburton in Sept., 1899.

FAM. THOMISIDÆ.

Philodromus fallax, Sund.

Immature examples of both sexes were sent to me during the past summer and autumn by the Rev. E. A. W. Peacock, from Ingoldmells, and the shore of "the Wash," Lincoln-

shire ; it has only been recorded before from Portland, Swanage, and Bournemouth ; but I find immature examples of both sexes in a bottle of spiders sent to me some years ago from St. Leonards-on-Sea, Sussex, by the late Mr. Richard Beck.

Philodromus lineatipes, Cambr.

An immature example found in the New Forest in September, 1899, by Mr. Cecil Warburton.

Pistius truncatus, Pallas.

An immature female found by Mr. Cecil Warburton in the New Forest, September, 1899.

Thomisus onustus, Walck.

An immature specimen of the female, New Forest, by Mr. Cecil Warburton, and another by Captain J. E. Reade at Ilford, in Essex. This last was a very bright pink-coloured example in the bloom of a double white stock, showing that the colour of the spider is not always adapted to that of the flower it inhabits. I have frequently found pale whitish examples on pink heather, and bright pink ones on yellow blooms.

Oxyptila sanctuaria, Cambr.

This spider has occurred again last summer at Bloxworth Rectory, but only the males.

Xysticus ulmi, Hahn.

Both sexes immature from Aylesby Marsh and New Ball Wood, Lincolnshire. (Rev. E. A. W. Peacock.)

FAM. LYCOSIDÆ.

Lycosa proxima, C. L. Koch.

An adult male, Birdlip, Gloucestershire, by myself.

FAM. SALTICIDÆ.

Dendryphantes hastatus, Clk.

An adult male, New Forest ; (Cecil Warburton, September, 1899.)

Hasarius arcuatus, Clk.

An adult male, New Forest; (Cecil Warburton, September, 1899.)

Attus petrensis, C. L. Koch.

An immature male; (Cecil Warburton, New Forest, September, 1899.)

For synonyms, &c., of the spiders in the above list, see "Spiders of Dorset," 1881, and papers on British Spiders published subsequently in the Proceedings of the Dorset Nat. Hist. and Antiq. Field Club, 1882-1900.

DESCRIPTIONS OF THE NEW GENERA AND SPECIES.

Gen. nov. * EUPOLIS.

Cephalothorax, longer than broad, very broadly truncated at the posterior extremity, the hinder slope, which is rather abrupt, being strongly impressed or roundly excavated. Anterior extremity also broadly and roundly truncated; lateral marginal impressions at the caput distinct but not strong. Height of clypeus less than half that of the facial space and sloping forwards; profile, nearly level behind the eyes. A slight shallow dip before the hinder slope.

Eyes, subequal, in two equally but not strongly curved transverse rows, of very nearly equal length, the front row slightly shortest. The convexity of the curve of the posterior row is directed backwards, that of the anterior row forwards. The fore-centrals are smallest, but rather large for that position, and are separated by nearly a diameter's interval, a full diameter separating each from the fore-lateral next to it. The hind-centrals are separated by rather less than a diameter from each other, but by rather more from the hind-lateral next to it. The

* Nom. propr.

four centrals form a quadrangle, whose length is a little greater than its width, and its fore side shortest, but not greatly so.

Legs, moderately long, subequal, rather slender (4, 1, 2, 3), furnished with fine hairs and a few bristles (as in *Sintula*).

Falces, long and strong, straight, outer margins, from in front; convex towards their base, and along the margin are some short minute pale spines. No teeth on the anterior margin of the fang-groove.

Maxillæ, short, strong, almost straight, nearly parallel, extremities broadest and rounded on the outer side.

Labium broader at the base than it is high, semi-circular.

Sternum considerably longer than broad; shield-shaped. Anterior margin straight, posterior extremity broadly drawn out between the coxæ of the hinder legs, and its termination nearly truncate. The interval between these coxæ being about equal to two-thirds of the length of the joint.

Abdomen large, oval, strongly convex above. Spinners normal.

Eupolis excavatus, sp. n.

Adult female, length 1 line.

Cephalothorax, *falces*, *maxillæ*, *labium*, and *sternum*, yellow tinged with brown. The cephalothorax has a narrow dark marginal line, the normal converging indentations being indicated with darker lines.

Legs and *palpi* pale yellow.

Abdomen projects greatly over the base of the cephalothorax. Colour yellow brown. Genital process large prominent. Aperture of very distinctive and characteristic form.

This spider was found some years ago at Bloxworth among herbage in a wood, and mistaken for a female of *Sintula oblivia*, Cambr.; it is, however, clearly distinct, and the characteristic form and structure of the cephalothorax, maxillæ, and sternum appears to require a new genus for its reception. It is allied to *Sintula*, Sim., as well as to *Microneta*, Menge, and in the excavated form of the hinder end of the cephalothorax it reminds one of *Auletta*, Cambr.

Gen. SINTULA, Sim.

Sintula prominens, sp. n.

Adult female, length $\frac{3}{4}$ of a line (1-18th of an inch).

Cephalothorax, broad-oval, narrow, and rounded in front, lateral marginal impressions at caput distinct but gradual; lower margin of clypeus considerably produced, and much impressed beneath the ocular area. Caput a little elevated and prominent in front, with a strongish dip in profile behind the occiput; the beginning of the hinder slope is also rather prominent in profile. Colour, yellow-brown with a broadish black margin. The sides also marked and suffused with blackish, indicating the normal converging grooves.

Eyes, rather large, sub-equal, in two very nearly equal transverse and equally curved rows; anterior row slightly the shortest. The convexity of the curve of the anterior row is directed forwards, that of the posterior row backwards. Those of this row are about equal in size, and are equally separated by little, if anything, more than half a diameter's interval. Those of the anterior row are separated also by equal intervals of less than the diameter of the four centrals. The fore-centrals form a quadrangle much longer than broad, and narrowest in front.

Legs, tolerably long, and moderately strong, 4, 1, 2, 3, furnished with fine hairs, and a slender bristle on the genuæ, and another towards the hinder end of the upper side of the tibiæ. Colour pale-yellow, tinged with yellow-brown on the femora, tarsi of the 4th pair distinctly but not greatly shorter than the meta-tarsi.

Falces, not very strong, a little divergent at their extremity. Colour, dull greenish olive-brown.

Maxille and *labium*, normal. Colour like the falces.

Sternum, normal in form, dark blackish brown.

Abdomen, oval, black, clothed with short coarsish hairs. Genital aperture of characteristic form, placed at the extremity of a very large, perpendicularly prominent obtuse process.

Found among heather on Bloxworth Heath.

Sintula nigrotibialis, sp. n.

Adult female, length $\frac{3}{4}$ ths of a line (1-16th of an inch).

Cephalothorax short-oval, slightly hollow-truncate behind, obtusely rounded in front, lateral marginal impressions at the caput slight, but quite perceptible. A slight dip in the profile line at the occiput. Height of clypeus a little less than half of the facial space. Colour dull olive-greenish suffused with blackish, and the normal indentations obscurely marked with dusky blackish lines. The curve of the anterior row is directed forwards, that of the posterior row backwards.

Eyes of moderate size, sub-equal. Those of each row are in an equally curved line. Those of the posterior row are equally separated by a diameter's interval, the central pair are scarcely, if at all, larger than the laterals. The fore-laterals appear to be rather the largest, and the fore-centrals smallest. These last are separated from each other by a very small but distinct interval, and are more than a diameter's distance from the fore-laterals. The four centrals form a quadrangle as long as broad, but its anterior side much the shortest.

Legs moderate in length and strength, 4, 1, 2, 3 furnished with coarse hairs, of which those beneath the tibiae and femora of the anterior pairs are strongest. A strong erect bristle towards the hinder extremity on the upper side of the tibiae and on the genual joints; the longest and strongest are on the tibiae of the fourth pair. The meta-tarsi of this pair are much longer than the tarsi. The colour of the legs is a dull yellow, tinged with olive. The tibiae, especially of the first and second pairs, are strongly suffused with dusky black.

Palpi similar to the legs in colour, radial joint double the length of the cubital, but shorter than the digital.

Falces rather long, moderately strong, straight, tapering, similar in colour to the cephalothorax.

Maxillae very short, strong, directed towards the labium, but their extremities still wide apart, similar to the falces in colour.

Labium much broader than high, of a somewhat semi-circular form, its apical margin bent downwards.

Sternum heart-shaped, length and breadth nearly equal; surface convex; fore-margin slightly hollow-truncate; posterior extremity a little drawn out and bent upwards in a broad obtuse ending between the coxæ of the fourth pair of legs. Colour of sternum dark blackish-brown.

Abdomen oval, moderately convex above, of a dull blackish colour, thinly covered with prominent bristly pale hairs. Genital process in profile rather prominent; the aperture (looked at from above) of a very distinct and characteristic form. Spinners normal, colour dull olive-greenish brown.

Examples of this spider were found many years ago on Bloxworth Heath at the roots of the heather. Hoping to meet with the male their record and description have been postponed hitherto; but that sex has not yet turned up. When the male does appear the character of the dark tibiæ of the female will probably be found to be possessed by it in a still stronger degree. It is possible that this spider may turn out eventually to be the female of *Sintula Frederici*, Cambr.

Sintula fausta, sp. n.

Adult male, length $\frac{3}{4}$ th of a line (1-16th inch).

Cephalothorax broad-oval, upper convexity moderate, obtusely pointed before, well rounded behind. No perceptible lateral marginal impressions at the caput, which is slightly roundly convex at the occiput, the profile line forming a slight dip between it and the thorax. Height of the clypeus, which is a little prominent at its lower margin, is half that of the facial space. Colour somewhat greenish olive brown, the normal grooves and indentations marked with a blackish hue.

Eyes rather large, sub-equal, in two transverse equally curved rows, the anterior shortest; the convexity of the anterior row is directed forwards, that of the posterior backwards. The hind-centrals are slightly larger than the hind-laterals. The interval between them is equal to a diameter, that between each of them and the lateral next to it is less. Those of each lateral pair are placed obliquely on a low prominence, and are contiguous, or

nearly so. The fore-laterals are, perhaps, slightly the largest of the eight, and the fore-centrals smallest. These last are almost contiguous to each other, and each is less than half a diameter from the fore-lateral next to it. Thus the lateral pairs and the fore-centrals form a regular and continuous semi-circle.

Legs moderate and sub-equal in length and moderately strong, 1, 4, 2, 3 furnished with hairs, no spines, only an erect bristle on the outer side near the hinder extremity of the tibiae, another at the fore end of the genual joints, and a longer one on the inner side of the hinder extremity of the femora of the fourth pair. The tarsi and meta-tarsi of this pair are of equal length. The colour of the legs is a pale dull yellowish tinged with olive.

Palpi moderate in length, similar in colour to the legs, cubital joints short, cylindrical, radial longer and much stronger, gradually and greatly widening to the anterior extremity, the inner side of which is produced into a strong, tapering, curved pointed apophysis directed outward, and whose termination appears to be bent downwards so as to make it difficult to see its real form; the outer side of this joint is also somewhat produced, and has a marginal row of bristles, digital joint, short, broad, oval; palpal organs rather complex, with two small black prominent corneous points at their fore extremity, one sharp-pointed, the other truncated, and a curved obtusely-pointed process at their base on the outer side.

Falces rather long, moderately strong, slightly divergent, tapering, similar to the legs in colour.

Maxillæ short, strong, broader at the extremity than in the middle, strongly inclined to the labium, obliquely truncated both on the inner and outer sides. Similar in colour to the cephalothorax.

Labium broader than high, truncate at the apex, where it is narrower than at the base, suffused with blackish, like the sternum.

Sternum large, shield-shaped, convex, nearly as broad as long, its posterior extremity a little produced, and bending upwards

into an obtuse point between the coxæ of the fourth pair of legs. Its anterior extremity is squarely and straightly truncate. Colour like that of the cephalothorax, but rather suffused with blackish.

Abdomen oval, dull black in colour and covered thinly with short coarse hairs. Spinners short and inconspicuous.

Received among other spiders kindly sent to me and collected by Mr. William Evans in the Autumn of 1899 at Lander, Berwickshire.

Sintula nescia, sp. n.

Adult female, length $1\frac{1}{3}$ rd lines.

Cephalothorax short-oval, much narrower and roundly obtuse in front; lateral marginal impressions at caput slight; posterior margin strongly indicated; height of clypeus less than half that of the facial space, and rather prominent in a somewhat obtusely pointed form at the lower margin. Looked at in profile the point of junction of the caput and thorax is considerably depressed, with a strongish elevation at the beginning of the posterior slope, which is very slightly hollow. Colour of cephalothorax pale orange yellow, with a narrow marginal black line. The fore part of the ocular area black.

Eyes rather large, closely grouped in two transverse rows. The anterior row is straight. The curve of the posterior row is directed backwards and tolerably strong. The anterior row is the shortest. The eyes of the posterior row are of as nearly as possible equal size, the central pair, perhaps, slightly largest, pearly white with narrow black margins, the two centrals are separated from each other by rather less than a diameter's interval, and each of them by about half a diameter from the lateral on its side. The fore-central pair are smallest. The fore-laterals the largest of the eight, and are separated from the hind-laterals by a small but distinct interval. The central quadrangle is broader than long, its fore-side being the shortest. All the eyes of the anterior row are dark blackish-grey.

Legs moderately long, 4, 1, 2, 3, rather slender, furnished with fine hairs and a few slender bristles. Colour, orange-yellow, paler at the articulations of the joints.

Palpi slender, the cubital, radial, and digital joints darker in colour than the legs, and furnished with stronger bristles.

Falces moderate in length and strength, slightly divergent, and somewhat contracted at their fore extremity; colour like that of the cephalothorax. Teeth on the inner margin at the fore extremity very minute.

Maxillæ short, strong, and much bent towards the labium.

Labium broad, very narrow, and its apical margin hollow-truncate. Colour of maxillæ and labium, pale yellow-brown.

Sternum, broad oval, truncate before, its hinder extremity a little produced into a broad obtuse termination; colour, yellow-brown.

Abdomen, rather large, short-oval, upper convexity considerable, genital process large, and very prominent; the structure is very characteristic, but somewhat resembling that of the most nearly allied species, *S. pholcommoides*, Cambr., on a large scale. The abdomen is glossy, thinly clothed with short hairs, and of a dull black colour. Spinners short, those of the superior pair smaller than the inferior, both pairs two-jointed, the terminal joints very short.

A single example of this species was found by Mr. W. Evans, at Comrie, in Scotland; it may be distinguished at once from *S. pholcommoides* by its much larger size, and greater development of the genital process, as well as by other characters.

Gongylidium gibbum, sp., n.

Adult female, length nearly $1\frac{1}{2}$ lines.

Cephalothorax, short, broad, broadly and roundly truncated before; lateral marginal impressions at caput, slight and gradual; immediately behind the ocular area, looked at in profile, the caput rises slightly and gradually to the occiput, with a distinct kind of limpet-shaped elevation or gibbosity. The height of the clypeus, which projects forwards is equal to slightly more than half that of the facial space. The colour of the cephalothorax is yellow-brown, with deep blackish-brown striated markings on the caput and thorax following the normal indentations; the ocular

area and a large patch from the occiput to the thoracic indentation also blackish.

Eyes in normal position, two transverse rows ; the anterior row shortest. The posterior row looked at above and sideways is slightly curved, the convexity of the curve directed backwards ; the eyes of this row are of equal size ; the interval between the central pair is more than one diameter (nearly $1\frac{1}{2}$ diameters) ; that between each and the lateral eye next to it is scarcely a diameter. The four central eyes form a quadrangle whose posterior side is the longest and its anterior the shortest. The anterior row is very nearly straight, its two central eyes are rather less than half a diameter apart, and rather more than half a diameter from the laterals. The fore-lateral eyes appear to be the largest of the eight, and are not quite contiguous to the hind-laterals.

Legs, moderate in length and strength ; 4, 1, 2, 3, furnished with hairs and a few bristles ; of the latter the most noticeable is a long strongish one beneath the fore-extremity of the femora, which are strong, especially towards the hinder end on the upper side ; colour of the femora bright red-orange, the other joints paler.

Palpi, similar in colour to the tarsi and metatarsi of the legs ; furnished with hairs and bristles, the latter stronger and more numerous on the radial and digital joints than on the legs ; several of these bristles are almost spines.

Falces, long and powerful, roundly convex and prominent towards their base in front ; straight, perpendicular, of a yellow-brown hue ; a few strong bristles in front.

Maxilla, short broad, inclined to the labium, obliquely truncated at their extremity on the outer side, and rounded on the inner margin at the upper part.

Labium broader than high, somewhat semi-circular, or rounded at the apex.

Sternum, as broad as long, shield-shaped, slightly hollow-truncate before, posterior end produced into a broad elongation ; spreading out a little, in a slightly fish-tail form, between the coxæ of the fourth pair of legs ; colour dark blackish brown.

Abdomen oval, moderately convex above, clothed pretty thickly with short coarse hairs; colour black. Genital aperture of distinctively characteristic form. Though somewhat resembling its congener *G. dentatum*, Wid., in general appearance, this spider may be easily distinguished by the form of this aperture, by its rather larger size and the eminence at the occiput; in *G. dentatum* the occiput is only a little and roundly convex. Spinners short and inconspicuous, immediately in front of them is a rather conspicuous transverse curved slit or opening, no doubt the entrance to a spiracular organ.

An adult female received from Mr. W. Evans, by whom it was found at Comrie, Scotland, in April, 1900.

Gen. nov. * SUSARION.

Cephalothorax short, broad-oval, roundly truncated before; lateral marginal impressions at the caput distinct, but slight. Upper part of caput a very little raised above the thoracic level. Height of clypeus less than half that of the facial space. Clypeus well rounded and rather prominent towards its lower margin.

Eyes in two transverse rows, rather large sub-equal, fore-centrals smallest, the anterior row rather the shortest; both rows are curved, the posterior curve strongest and its convexity directed backwards, that of the anterior row forwards. All are of a pearly white colour; those of the anterior row are very near together, the intervals equal and less than the diameter of a fore-central eye; those of each lateral pair are placed slightly obliquely, and are separated by an interval equal to that between the fore-centrals, so that these six eyes form an equally divided semi-circle; those of the hinder row are equally separated by rather less than a central eye's diameter's interval, the four centrals form a trapezoid whose fore side is shortest and its length considerably greater than its breadth.

* Nom. propr.

Legs rather short, strong, sub-equal, 4, 1, 2, 3 and furnished pretty thickly with strong bristly hairs. Those beneath the tibiae of the first pair are almost spines, and form two longitudinal rows, reminding one of the genus *Maso*, Sim.; towards the posterior end of the tibiae of the third and fourth pairs is a long nearly erect slender spine; tarsi much shorter than the metatarsi.

Falces strong, very convex in front, straight. A row of very minute teeth on the front margin of the fang groove.

Maxillæ short, strong, obliquely truncate at the extremity on the outer side, inner side straight.

Labium more than double as broad at the base as it is high; at its apex the width is a little less than at its base.

Sternum as broad as long, very convex, fore-margin hollow-truncate; posterior extremity slightly produced into a broad truncate termination between the coxæ of the fourth pair of legs.

Abdomen short, oval. Spinners short, superior and inferior pairs, apparently of equal length, and enclosed in a kind of sunken cavity of a circular form.

This genus is apparently allied both to *Sintula* and *Maso*, but differs in various respects from both.

Susarion neglectum, sp.n.

Adult female, length 1 line.

Cephalothorax of a dull orange colour, the normal indentations indicated by indistinct brown lines, and a radiating patch of the same at the occiput.

Legs and *palpi* of a clearer orange than the cephalothorax.

Falces similar in colour to the legs.

Maxillæ and *labium* suffused with brown.

Sternum darkish yellow-brown.

Abdomen dark brown tinged with yellowish, and furnished thinly with coarse hairs. Genital aperture of very distinct and characteristic form.

A single example of the female was found among heather near Bloxworth in 1882, and has remained unique to the present time. It seems to me to belong to no genus as yet characterized.

Gen. nov. EVANSIA.

Cephalothorax, moderate in general convexity; hinder slope long; caput distinctly elevated, in a blunt conical form, lateral marginal indentations at caput scarcely defined; height of clypeus distinctly exceeds half that of the facial space, and its profile follows on the slope of the fore part of the ocular area, its lower margin well rounded. A little way behind each lateral pair of eyes is a large oval cavity or indentation, its pointed end directed backwards.

Eyes small, sub-equal, on small black spots, occupying the whole fore side of the upper part of the caput, in two transverse rows, the hinder row almost semi-circularly curved, the convexity of the curve directed backwards, its eyes equal in size or nearly so and equi-distant from each other, the laterals perhaps slightly the smallest, the intervals nearly equal to two diameters. The anterior row is slightly curved, its convexity directed backwards, laterals contiguous and slightly obliquely placed. The fore-laterals are very slightly larger than those of the hinder row; fore-centrals smallest, about half the size of the fore-laterals, dark grey, the rest pearly white; fore-centrals less than half a diameter apart. The four central eyes form a quadrangle a little longer than broad; its fore side much the shortest.

Legs moderate in length, slender, sub-equal, 1, 4, 2, 3, furnished with coarse, rather bristly hairs; a single short nearly erect spine towards the hinder extremity of the tibiae of the first and second pairs; beneath the femora the hairs are somewhat spiniferous and form two longitudinal parallel rows. Tarsal claws on a claw-joint, superior claws slender, pectinations very minute near the middle, almost sessile; inferior claw very small; metatarsi of 4th pair much shorter than the tarsi.

Falces moderately long and strong, straight and tapering, about equal to the facial space in length; the fore-margin of the fang-grooves has a close set row of 6—7 minute teeth.

Maxilla short, strong, greatly inclined to the labium, very slightly curved, obliquely truncate at extremities, which do not nearly meet over the labium.

Labium much broader than high, general form sub-triangular, a prominent transverse ridge across the middle. Between the extremities of the maxillæ the tongue (lingua) *rostrum* (Sim.), is very apparent, occupying the whole space between the maxillæ, the apex of the labium and the fangs at rest in their grooves, and its outer surface is clothed thinly with hairs.

Sternum large, a little longer than broad, of a regular shield form, very convex, its anterior margin nearly straight, its posterior extremity a little drawn out into a broad obtuse point, the interval between the coxæ of the fourth pair of legs being nearly or quite equal to the length of the coxal joint.

Abdomen oval, moderately convex above. Thinly covered with short, somewhat bristly, slightly curved hairs. Spinners short, inferiors and superiors equal in length, the former strongest. Immediately in front of these is a transverse prominent rim, probably covering the entrance to tracheal tubes.

* *Evansia merens*, sp.n.

Adult male, length rather more than one line.

The whole of the fore-part is of a somewhat pale brownish or tawny yellow colour. The abdomen being of a rather duller darker brown hue, with a slightly deeper-coloured longitudinal central tapering stripe, and several pale angular lines or chevrons on the hinder half of the upper side; the legs are tinged with orange-yellow.

The *cephalothorax* has a few bristly hairs in a longitudinal central line on the upper side of the thorax, and others within the area of the four central eyes.

Palpi moderately long, cubital joint short, rather larger at the fore-end than behind. Radial joint much broader and stronger, its fore-extremity produced into a long, broad, and obtusely ending curved apophysis, directed rather outward, and on the inner-

* I have given this name to the genus in acknowledgment of the great kindness and liberality experienced from Mr. Evans in respect to the many rare and new spiders he has met with.

margin of the curve near the posterior end of the produced portion is a prominence ending in a curved pointed spine directed outwards. The digital joint is large, of an oval form, and is somewhat angularly prominent towards its fore-extremity on the outer side.

The *palpal* organs are somewhat complex, greatly developed, with a curved corneous blunt-pointed hook-like process at their base on the outer side ; a corneous lobe, long and of irregular form, projects considerably beneath and outwards, and a long strong tapering circularly curved black spine issues from beneath their extremity, and has its fine point in near connection with the end of the corneous lobe mentioned above.

An adult male of this very distinct species was kindly communicated to me by Mr. W. Evans, of Edinburgh, by whom it was found at Glenfarg, in Perthshire, in 1899. It is allied to *Tapinocyba*, Sim., and more nearly to *Prosopotheca*, Sim., but is, I think, distinct from both.

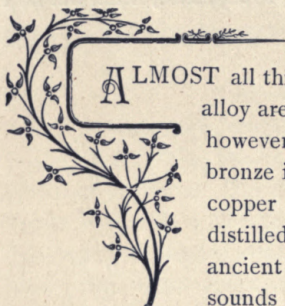




Notes on Bronze.

By H. J. MOULE, M.A.

(Read Feb. 26th, 1900.)



ALMOST all things made in ancient times of copper alloy are called bronze. Is this always right, however? Speaking broadly, of course, bronze is an alloy of copper and tin, brass of copper and zinc. Zinc was not smelted, or distilled, till last century. Therefore no ancient copper alloy can be brass. This sounds logical, and yet it is not. It seems absurd to say that a metal was used before it was discovered, much less smelted. This, however, was what happened. Two ancient writers, a Greek and a Roman, are * quoted as showing this. Aristotle says that the Mossinecians made a bright and light-coloured χαλκος, not by adding tin, but by fusing copper with a certain earth. Almost without doubt this was an ore of zinc. † Pliny, again, speaks of

* Encyc: Brit: 'Zinc.'

† Pliny is not very clear apparently. He says (xxxiv. 2) [æs] "fit et ex lapide æroso quem vocant cadmiam," and (xxxiv. 22), he speaks of cadmia as "lapis, ex quo fit æs." But again [æs] "Marianum cadmiam maxime sorbet," as if cadmia and æs were not so related as ore and metal are.

“cadmia,” now known as an ore of zinc, changing copper into “orichalchum.” Copper and cadmia were fused together, the former taking up as much as 25 per cent. of what must have been zinc. This bronze, in other words, was brass. So, almost surely, was Aristotle’s light-coloured bronze. But yet another doubt there is sometimes. * *χαλκος* may not only mean brass, or bronze, but pure copper also, without tin or zinc or other alloy. Homer calls *χαλκος ερυθρος*, red. Some hold that, before losing his sight altogether, he was somewhat colour-blind. But no one, if perceiving difference of hues in the least degree, could call either bronze or brass red. He must have meant copper. So at least says Gladstone in his Homeric studies. Sir J. Evans doubts this argument; because some bronze is reddish brown when uncorroded. He agrees, however, in thinking that Homer in places means copper by *χαλκος*. For in one place at least (Il. iii., 348), he speaks of spear-heads bending against shields, not likely if of bronze. Sometimes, however, Homer means bronze, because (Il. iii., 363), he tells us of a sword breaking into three or four pieces, which copper could not do. Even now, however, we have not done with the question, What is bronze? For some ancient bronzes contain other metals besides copper, tin and zinc. In particular, there was the greatly noted *æs Corinthium*, Corinthian bronze. This, by some, was thought to have been accidentally produced by the fusing of ordinary bronze, gold, and silver images together, in the burning of Corinth by Mummius. Pliny (xxxiv. 3.), doubts this. He specifies three sorts of Corinthian bronze. One is white, silver prevailing in its composition. Another was of the yellow tone (*natura*) of gold. In the third the three ingredients were equal. No doubt the second, with its high percentage of gold, was the kind which had the great value often spoken of. Possibly, although of earlier date, two vessels spoken of by Ezra may have been of some such

* Both *χαλκος* and *æs*, some say at times mean metal at large. Indeed, in some passages they seemed used for iron. So much so, that the German *eisen*, iron, is thought to be cognate with *æs*.

alloy. "Fine copper, precious as gold" was the material, an alternative rendering being "yellow as gold." * (Ez. viii. 27). Besides tin, zinc, gold and silver, there are two other metals used in bronze alloy, lead and a little iron in a few instances. This last produced a reddish colour. Lead often enters into the composition in ancient and modern times. Pliny says that lead and silver were added to produce certain colours in bronze statues. He tells us that, with the addition of a tenth of lead and a twentieth of silver to the copper, the bronze "*maxime colorem bibit quem Græcanicum vocant*" (xxxiv. 20). What the Græcanic colour was like he does not say, however, nor do Valpy's notes. But it was, it seems, purple of some kind, for just after he has the dictum, "*cyprio si addatur plumbum colos purpuræ fit in statuarum prætextis.*" Lead, however, was used not only for colour's sake, one sort of bronze prepared for making pots and pans (*temperatura ollaria*) having three or four per cent. of lead. The use of lead in these vessels may have been to make them less brittle, for Pliny speaks of the copper, lead and silver alloy as "*æs tenerrima*," very soft bronze. If so, bronze, if it may be so called, of copper and lead only, was a poor material for money. And yet for many years it seems the Romans so used it. Lead bronze was found, on analysis, to be the material of a collection of modern Chinese and Japanese art vessels shown in Paris some years ago. They were remarkable for their dark, blackish hue. Lead, again, enters into the alloy of which guns are made. It probably accounts for the greyness of gun-metal. A good deal has been said about varieties of bronze. But there is one other which must be named, and that the most interesting of all, in connection with the Dorset Museum. It is a sort in which tin seems to predominate greatly. In 1882 six little socket-celts were found in a barrow, near Eggardon. They are rough from the mould, unsharpened. Now, three of them show nothing of the usual bronze colour. They are

* The revised version has "fine bright brass." The ancient Syriac translation "good Corinthian brass."

of a grey tone, and by some have been pronounced to be pure tin. Canon Greenwell, however, when here some months ago, would not hear of this. Still, the entire absence of any trace of copper colour seems to show that the percentage of other metal, probably tin, is unusually great. It is possible, however, that there may be some lead, as the celts in question on being weighed do not seem to be especially light. It is believed that celts of this sort of metal are very rare. In passing from this part of the subject, the various alloying ingredients used with copper, we may note by the way that of late years it has been found that a percentage of phosphorus in bronze adds greatly to its strength and elasticity. There is no sign of the ancients having stumbled on that fine alloy, aluminium bronze, as they did on brass.

A few words must now be said about certain differences of colour in bronze other than those above-named as arising from differences of alloy. The varied colours now in question are believed to arise from differences in the soils in which ancient bronze relics have lain for ages. For instance the patina varies. This, however, as we saw above, can be caused by metallic combinations. Still, we may believe the assertion that soil has much to do with the greater or less amount of oxidization, producing much or little patina. In some specimens, *e.g.*, Case xiii*a.*, 30, 32, 33, the patina is very abundant and bright in colour. In others there is a little, but what there is is like in hue. There are, however, two specimens of which the colour is quite different. There is hardly any patina, and the metal is brown, but not the same in the two. One is a very fine dagger, xiii*b.* 28, the other is an armlet, xiii*b.* 60. Now these things, especially the armlet, have a yellow metallic-looking coating in places. This looks very much like a relic of gilding. If so one might think that the brown, exposed surface may have escaped oxidization through the protection of the gilding, lasting, as it doubtless would do, for ages. But the experts, *e.g.*, Sir J. Evans and Canon Greenwell, affirm that this look of gilding is quite deceptive. If, as is supposed, it is the effect of the quality of soil in contact with the bronze, what soil? It has been said, but

authority cannot be quoted, that peat soil causes this appearance. This was affirmed in connection with a number of coins of the Constantines in the Dorset Museum, which in a less degree have this gilt look. (Case G. ii., 250, 254, &c.) The question is one worthy of research, but not easy to work out.

A few sentences must be given to methods of working bronze. A noteworthy quality of this alloy is that it is much harder than either of its chief ingredients and more fusible. Also in alloy of some proportions, such as Chinese gong-metal, with as much as 20 per cent. of tin, it is more brittle by far than is either of the two simple metals. This brittleness is remedied by making the bronze slightly red hot, when it can be forged and remains tough permanently. Some cast bronze, with little tin, is, however, pretty tough. This is evident from the socket-celts, which, from their hollowness, could not well be hammered except close to the edge. And also it is shown by the practice, which is affirmed by some to have existed. This was, to hammer the bronze when cold as a means of hardening and tempering it. Another way, producing this result, is mentioned by Sir J. Evans, but doubtfully. This method is the cooling the bronze slowly, making it (as affirmed) as hard as steel and less brittle. With the just possible exception of some of the early plain wedge-shaped celts, all weapons and tools seem to have been cast. So, too, were a great part of the ornaments and other small Celtic or Roman things made of bronze. It has been thought that all bronze things found in Britain were imported, perhaps from Etruria. But some celts and spear-heads were home-made, for stone moulds for them have been found in England. Of these two or more are from Dorset, but unfortunately neither of them is in the County Museum.

The Romans, borrowing probably from the Greeks, as was their wont, cast bronze statues of any large size hollow. Some of them are of extraordinarily thin metal. It may be in place to say a word about this method. Some persons may be puzzled by it, and in the Cunnington Collection here we have a fragment of a hollow bronze statue. Moreover, every socket-celt and spear-

head is a result of this method. A rough clay copy of the model of the image, vase, or other thing to be cast was made, smaller in every dimension than the model. The amount of difference of dimension regulated the thickness of the bronze casting. Then on the model of the image was moulded a clay coating, in two or more pieces, closely fitting edge to edge. These pieces were with the most exact care luted together over the core or smaller image, or other object, above named. Of course the two were adjusted so as to leave the interval between them quite uniform. Finally this interval was filled with melted bronze. When this was set the outer coating and the core were removed and there was your hollow bronze image. Whoever wants to partly realise the racking anxiety of producing a large work of this sort, let him read Benvenuto Cellini's immortal tale of the casting of his Perseus. In modern times, but not, as far as is known, of old, a very ingenious method was used, called the process "*de la cire perdue*." This appears to be as follows:—The core was made in the usual way. On it was applied a coating of wax of the thickness desired for the bronze. On the surface of this wax were artistically modelled the details of the image. To this modelled surface was applied the coating of clay, and that it seems all in one piece, as of course would be possible. When the clay hardened the wax was melted and run off. The melted bronze was then poured into the cavity. The metal of course showed all the modelling of the displaced wax. This method would seem to have two advantages: Firstly and chiefly, it takes away the need of luting together the coating, which may cause slight lines on the metal. Secondly, it secures accuracy of the thickness of the metal. For large statues, the casting is done in several portions which are afterwards fitted together and joined with melted metal. Of course this casting in sections must have been the method used for the gigantic bronze statues of ancient times. A curious modification of casting bronze with a core was anciently in use in Assyria and Etruria. They sometimes made the core of iron, and retained it of course within the bronze. But the method was bad, judging

by one Etruscan image of this kind in the British Museum. The iron has expanded and split the bronze. A sort of work cognate with this is represented in the Dorset County Museum. A highly ornamented armlet in the Cunnington Collection, Case xv., has a core of some sort with a sheathing of bronze, apparently not cast, however. Again, several rings and other things in the very remarkable Belbury Find, in the same collection, Case xiv., are of iron, thinly coated with bronze.

There remains the repoussé process to be named as the last touched on in this paper. It must not be passed over because in the Cunnington Collection, Case xv., there is a rude, but very curious and puzzling specimen of this sort of bronze work. We have here to think only of the workmanship. The thin plate has been "repoussé" into a human or divine figure with ornaments round. It gives the idea, however, of not having been wrought by hand-punches in the strictly repoussé manner, but with a stamp and die at one blow as the ornaments of brass trays and such like are done now.

Bronze wire was used largely by most ancient nations. This, one may suppose, was of bronze without much tin, the rather as the wire ornaments seem very liable to patination. Anyhow the wire was of a pliable, tough nature, as is proved by its close twisting in many specimens.

Everyone who cares about bronze acquires an extraordinary fondness for the patina of it. This paper, therefore, should not omit Professor Flinders Petrie's remarkable opinion on the subject. He says, * "Patina is not usually formed out of the surface metal, but is of metal drawn by slow action out of the whole mass. A metallic object is not homogeneous, but is made up of a multitude of minute crystals of pure metal and of the various alloys formed by the impurities, or intentional additions, which are present. Thus there are particles all through the mass, which are more oxidizable than their neighbours, and these forming a galvanic action with the less oxidizable are—in

* *Archæological Journal*, No. 177, p. 89.

the very slow process of rusting—transferred to the surface.” Now these words of Petrie’s are strongly confirmed by specimens in the Dorset Museum. In particular, a dagger, Br. 32. in Case xiii. a, is in great part loaded with oxide, yet its surface seems uninjured. Observe that Petrie says “usually.” So it is, for some bronzes, for instance, Br. 33. in Case xiii. a., have the surface greatly pitted by oxidization.

Notes on ancient bronze must perforce contain a word on the “Bronze age.” Of course, the bronze age of one European country was a very different epoch from that of another. Greece was emerging from her bronze age 800 or 900 B.C. Homer speaks of both bronze and iron weapons, iron being still scarce, however. It seems to have come into use much later in Britain. Indeed, the opinion has prevailed, and still exists, that it was unknown here before the coming of the Romans. There are, however, archæologists, for instance Canon Greenwell, who do not think so. They put back the date to from 300 to 200 B.C. Certain it is that about 50 B.C., Julius Cæsar found the Gauls fully iron-age folk, almost in advance of the Romans. At least it was clearly a novelty to him to find the Gallic Veneti using iron chain cables. When Gaul was so far advanced it is difficult to believe that imported iron, if not home smelted iron, was not used in Britain then and long before. Canon Greenwell says of the bronze plated iron things from Belbury above named:—“I think you may, without any hesitation, say that they are of a date about B.C. 100, with a rider that they may be a little later.”

Here end these notes on bronze, imperfectly compiled from several authorities, old and new. These are, chiefly, Pliny, Sir J. Evans, Canon Greenwell, Professor Flinders Petrie, Dr. W. H. Smith, and the *Encyclopædia Britannica*; Aristotle is not accessible.

There is a strange spell about ancient bronze. The ancients loved it, and some archæological moderns there are who “go in” for bronzes and only bronzes. Bronze has a magic drawing power on the mind, or imagination rather, like that exerted by another and widely different link with grey antiquity. The Wall

that is—Hadrian's Wall. A man that has seen the Wall—well, he dreams of the Wall. Standing, say, on the hoary west-gate masonry of Statio Burcovicus, and looking this way and that, along the great lonesome pastures fenced on the north for miles by the Wall, he almost sees the cohorts patrolling, almost hears the alarm blasts of the tuba echoed from crag to crag. So, in a manner, it is with bronze. The very word bronze sets us imagining in our minds the ancient, the mediæval, the vast, the delicate works in that enduring metal—the Mercury of Herculaneum—the gates of Ghiberti—the seventy cubit Phœbus of Rhodes—the parcel-gilt enamelled fibula from Charminster, Dorset.

DORSET-FOUND CELTIC AND ROMAN BRONZE OBJECTS IN THE DORSET COUNTY MUSEUM.

Of bronze objects belonging to ancient times the weapons can generally be assigned to the pre-Roman epoch. But there is much more difficulty in giving a date, even roughly, to ornaments.

The things here catalogued are numbered Br. 1, Br. 2., &c.; Br. standing for bronze.

i.—CELTS.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xviii.	Br. 1.	<p><i>On Ridgeway Hill. Barrow 7 in the map close by.</i></p> <p>A little celt of the simple wedge form. It is broken at the small end, $3\frac{1}{2}$ in. long.</p> <p>Adhering to this celt is a little fragment of cloth, the only ancient relic of this kind in the Dorset Museum.</p>	With the Cunnington Collection.
xii.	Br. 2.	<p><i>Jordan Hill, Weymouth.</i></p> <p>A still smaller specimen of the wedge formed celt. It is only $2\frac{1}{2}$ in. long.</p> <p>Such a very small implement was used as a chisel, not an axe, one may think. Jordan Hill is a site where a multitude of Roman relics have been found. But from this celt being discovered there, as well as a socketed celt and 2 bronze spear heads, and many flint balls, the place seems to have been before occupied by the Britons.</p>	With the Warne Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. a.	Br. 3.	<p data-bbox="319 318 731 348"><i>Near Muddox Barrow, Bere Regis.</i></p> <p data-bbox="291 356 826 500">This wedge-shaped celt from its deeply pitted surface seems to be very old. Unfortunately the finder damaged it by filing. 4½ in. long.</p> <p data-bbox="291 505 826 1538">The simple wedge-shaped celt was repeatedly improved. It must have been difficult to fasten it to a shaft, lancewise, or to an angular, elbowed handle, axewise, firmly. With all the binding with small thongs of hide or with sinews, it would in time split the handle, and would also get loose sideways. To prevent the latter the celt was furnished with flanges, two at each edge of the upper part, or with triangular projections, or short flanges, near the middle of its length. This kept it from getting loose sideways. Then the other evil, the risk of splitting, was prevented by adding a ridge or shoulder on each side, joining the flanges. A slotted handle, of either lance or axe sort, carefully fitted on to such a celt, or palstave as it is called, and well lashed round, would be quite firm. And all chance of its dropping out was prevented by adding an ear or ring, through which part of the lashing was passed. The Dorset collection here does not contain specimens of the first two of the improved sorts, the flanged and the winged celts, but some from other parts are in Case xvii.</p>	With the General Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvii.	Br. 4.	<p>Of the regular shouldered palstaves the Dorset collection has several, as follow:—</p> <p><i>Wareham.</i></p> <p>A very light palstave, with only a shallow shoulder. From its slight make it seems possible that it was meant to be used as a chisel rather than a lance or axe. It was unskilfully cast, being honeycombed with several holes, not caused by corrosion.</p>	<p>With the Cunnington Collection.</p>
xvii.	Br. 5.	<p><i>Wareham.</i></p> <p>A small, narrow-edged specimen ($1\frac{3}{8}$ in.), of much more solid make than Br. 4, but like it in shallowness of shoulder-ridge.</p>	<p>Do.</p>
xvii.	Br. 6.	<p><i>Near Wareham.</i></p> <p>A solidly made, rather rudely cast specimen, with the normal curved edge, $2\frac{1}{4}$ in. wide. Shoulder deeper.</p>	<p>Do.</p>
xvii.	Br. 7.	<p><i>Near Dorchester, Eglesham Meadow (below Colliton Walk).</i></p> <p>A fully developed palstave, having well-projecting wings, deep shoulders, and it has had a ring or ear (see description above), of which there is no sign in 4, 5, or 6. This palstave is ornamented with a 'rat's-tail' below the shoulder.</p>	<p>Do.</p>
xvii.	Br. 8.	<p><i>Same Locality.</i></p> <p>Much like 7, but its wings project less and are longer. Its ring or ear is perfect. Besides a rat's-tail, or rather a slight ridge from the shoulder to the bevel of the cutting edge, it has a hollow on each side of the upper part of that ridge. Both 7 and 8 are much oxidized.</p>	<p>Do.</p>

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvii.	Br. 9.	<i>Fontmel Down. Ploughed up.</i> This is a good palstave of finely curved outline. Its edge is 3in. wide not following the curve. Unfortunately, a piece of the edge is broken away. On one side there is a rat's-tail ridge, on the other three small ones converging. And the edges of the sides of the blade are brought up into slight flanges. There has not been an ear.	With the Cunnington Collection.
xvii.	Br. 10.	<i>Same Locality.</i> This is smaller and less ornamented than Br. 9, but with a great likeness to it. No ear. Both 9 and 10 are free from oxide.	Do.
xiii. a.	Br. 11.	<i>Rew, Winterborne St. Martin.</i> A good specimen of a style of palstave differing from others in these collections. The shoulder is not a ridge uniting the flanges or wings. The flange which widens downwards is curved round to make a deep shoulder and then tapers up the opposite edge. Again, the faces of the blade are convex, not flat as usual. They are unornamented. This palstave has, unfortunately, been a good deal filed and brightened up. The ear is perfect.	Lent by Sir R. Edgecumbe.
xiii. a.	Br. 12.	<i>Winterborne Steepleton.</i> A palstave with wing-shaped flanges and deep flat bedded shoulder. The blade is adorned with a rat's-tail ridge on each face. The ring is broken.	Presented by T. Wood, Esq.

SOCKETED CELTS.

The only other kind of bronze celt was a new invention, not a mere improvement of the palstave type. Instead of the handle having a slot to receive the upper part of the celt it is brought to a conical form and fitted into the socket, of which the butt end of the celt consists. Such a celt must have been a very handy, useful tool or weapon.

No of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 13. Br. 14.	Six little celts, Br. 13 barely 3½ in. long, found with a seventh (?) in a barrow near Eggardon Camp in 1882. These have never been used, the edges being unground just as they came out of the moulds. They are all ornamented with slender fillets or ridges ending in small knobs. Br. 14-17 have 4, Br. 13 only 1, Br. 18 has 3 and is of a make rather different from that of the others. The sides are somewhat more curved, and are angular, not almost flat like the rest. All have a loop. Br. 13, 16, and 18 are remarkable from their being apparently made of almost or quite pure tin; but the weight, not less than bronze, may show that there is a mixture of lead.	13, 14, with the Hogg Loan Collection. 15-18, with the Cunningham Collection.
xvii.	Br. 15. Br. 16. Br. 17. Br. 18.		
xii.	Br. 19.	<i>Jordan Hill, near Weymouth.</i> A celt which, like Br. 13, 16, and 18, seems to be made of almost or quite pure tin.* It has three fillets on each side.	With the Warne Collection.
xiii. a.	Br. 20.	<i>Milborne St. Andrew.</i> A celt ornamented with three fillets on each side united by a ridge at the upper end.	

* The Rev. Canon Greenwell does not accept this opinion.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. a.	Br. 21.	<i>Near Fifehead Neville.</i> A celt ornamented somewhat differently from the others in this Museum. It has on each side two fillets, but curved inwards.	Presented by C. Connop, Esq.
xiii. a.	Br. 22.	<i>Near Wareham.</i> A celt with three fillets on each side. Its ring is gone.	Presented by R. Fetherstonhaugh Frampton, Esq.

ii.—DAGGERS.

The weapons or tools now generally called daggers, or knives, were formerly thought to be spear-heads. In some instances, this may be true. One, only 3in. long, found at Roundway, Wilts, had a wooden shaft about 1ft. long, which could not have been a dagger or knife. (Evans' *Bronze Implements* p. 242.) On the other hand, several of these implements have been found with dagger handles remaining.

N.B.—According to Sir J. Evans' classification in his "*Bronze Implements*," knives should come before daggers. But as B. 37 is the only specimen, except dagger-knives, and as it may be a javelin head, it is catalogued with spear-heads.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xv.	Br. 23.	<i>Clandown Barrow, Martinstown.</i> This dagger is very imperfect, but it is of much importance as seeming to give the epoch of the rest of the noteworthy find, with which it is grouped.	With the Cunnington Collection.
xv.	Br. 23a.	<i>Frome Whitwell.</i> Dagger knife only 2½in. long, 2 rivet-holes.	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xviii.	Br. 24.	<p><i>Barrow on Ridgeway. (7 on map at the other end of this case.)</i></p> <p>From the third interment.</p> <p>A good specimen retaining its three rivets. 7½ in. long.</p>	With the Cunningham Collection.
xviii.	Br. 25.	<p><i>Same Barrow.</i></p> <p>Fourth interment.</p> <p>An imperfect specimen, but very interesting, because some little remnant of the wooden (?) sheath is still sticking to it. It also shows an impression of the handle's edge, with the characteristic semi-circular notch plainly seen. It retains three of its four rivets.</p>	Do.
xviii.	Br. 26.	<p><i>Same barrow and interment as 25.</i></p> <p>It retains five of its six rivets.</p> <p>Just below 25 and 26, found in the same barrow, and probably belonging to one or the other of these two weapons, are two gold fittings, apparently of a dagger hilt.* They are lettered A & B. One somewhat like B is figured by Sir J. Evans (<i>Bronze Implements</i>, Ed. 1. p. 239). A. is almost certainly the socket or pommel protecting and ornamenting the butt end of the hilt. Sir J. Evans (p. 227), says "the lower end of the haft was often inserted in a hollow pommel, usually of bone." He does not seem to mention any made of gold.</p>	Do.

* Mr. Cunningham does not accept this opinion.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xii.	Br. 27.	<i>Lord's Down, Dewlish.</i> A very good dagger, 5in. long. It retains its two rivets. It is ornamented with the usual converging sets of parallel lines. But, besides this, the space between the two sets of lines is dotted thickly over with minute punched superficial holes. It is described and figured in Warne's Celtic Tumuli of Dorset, Pt. i. p. 50, and plate of weapons.	With the Warne Collection.
xiii. a.	Br. 28.	<i>Boveridge House, Cranborne.</i> A very fine, although broken dagger, 13in. long, ornamented with the usual lines. It is remarkably free from patina, and is of a copper colour. Towards the point there are remains of what looks much like gilding. As to this golden appearance, however, Sir J. Evans says of a large dagger found at Woodyates, by Sir R. C. Hoare, : "This blade, like many others, is described as having been gilt, but this can hardly have been the case. Dr. Thurman has tested such brilliantly polished surfaces for gold, but found no traces of that metal." (Ancient Bronze Implements, Ed. 1, p. 236.)	Lent by H. W. Brouncker, Esq.
xiii. a.	Br. 29.	<i>Boveridge House.</i> A small imperfect dagger or knife, 4½in. long.	Do.
xiii. a.	Br. 30.	<i>Fordington.</i> A dagger imperfect at both ends, but interesting from its showing the impression of the rim of the sheath in the oxide.	Presented by the Rev. H. Moule.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. a.	Br. 31.	<p><i>Fordington.</i></p> <p>A minute dagger shaped knife. It has lost its point, but when whole, cannot have been more than 2in. long. It has two rivet holes.</p> <p>N.B.—Br. 30 and 31 are figured in the <i>Archæological Journal</i>, Vol. v., p. 323.</p>	Presented by the Rev. H. Moule.
xiii. a.	Br. 32.	<p><i>Laurence Barrow, Fordington (formerly behind the site of Sidney Terrace).</i></p> <p>A dagger, 8$\frac{3}{4}$in. long, imperfect at the upper end.</p>	Lent by W. Tilley, Esq.
xiii. a.	Br. 33.	<p><i>Laurence Barrow.</i></p> <p>A very small dagger or knife, imperfect at the point. When whole it must have been 4in. long. One of its two rivets remains.</p>	Do.
xiii. a.	Br. 34.	<p><i>Winterborne Came. Barrow at the W. end of the South Plantation.</i></p> <p>A good dagger well preserved, except at the upper end, where one out of the four rivet holes has disappeared. This dagger like Br. 28, has been broken. Can this have been done ceremonially at the burial?</p>	Presented by the Hon. Mrs. Dawson Damer.
xiv.	Br. 34a.	<p><i>Belbury Camp, Higher Lytchett.</i></p> <p>An object made of iron, plated with bronze. It is somewhat flat, widens from about 1in. in two hollow curves to about 2 in. In this wider edge is a hole, which looks as if it were meant for the insertion of a dagger blade. At the small end, which is encircled by a thin bronze flange, there seems to have been an iron tang, probably for a wooden handle.</p>	With the Cunningham Collection.

iii.—SPEAR-HEADS.

Of bronze spear-heads, this Museum possesses only two found in Dorset. They are from Jordan Hill, a Roman site. But inasmuch as from the same place there are two bronze celts, one being of the earliest shape (Br. 2), and the other, a socketed one (Br. 19), it would seem to have been occupied by Bronze-age Celts before the Romans came. These spear-heads, being like some of Sir J. Evans' illustrations, are therefore here classed as Celtic. (See Evans' "Bronze Implements," Ed. 1. p. 312, &c.)

No of Case.	No. of Object.	Locality, &c.	How procured.
xii.	Br. 35.	<i>Jordan Hill, Weymouth.</i> 6 $\frac{3}{4}$ in. long. The socket's bore is $\frac{3}{4}$ in. Point imperfect, and much worn or ground. A hole in the socket for a rivet. The mid-rib has three facets, slightly hollow.	With the Warne Collection.
xii.	Br. 36.	<i>Jordan Hill.</i> 5 $\frac{3}{4}$ in. long. Point very much ground away. Socket $\frac{3}{4}$ in. bore, no rivet hole. The mid-rib is narrow but projecting boldly with two facets. Parallel with the edges are several slight, irregular lines, recalling those on daggers.	Do.
xii.	Br. 37.	<i>Hewish Farm, Milton Abbas.</i> It is difficult to classify this object. From its general shape it may be a light javelin head. But against this there is the shape of what remains of the socket, the section of which is a narrow oval. This, with the thinness of the blade, and its having no mid-rib, perhaps show that it is a knife rather than a javelin head, 5 $\frac{1}{4}$ in. long, $\frac{3}{4}$ in. wide. The socket is imperfect.	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 38.	<p>From "Bronze Implements," Ed. 1., p. 205, Br. 37 would seem to be a knife.</p> <p><i>Fifehead Neville. Roman Site.</i></p> <p>An object partly like a Celt of the earliest form. It, however, at what in a celt would be the narrow end, curves out to a greater width than that of the edge. This wide butt-end is straight and flat, $\frac{1}{2}$ in. thick. From this shape, from its having been found, as is quite believed, on a Roman site, and from its small corrosion, this implement cannot be Celtic as it seems. Just possibly it may have been used for cutting, held in the hand just as it is, without a handle. It may have been for leather cutting. It has been pronounced to be Egyptian.</p>	Given by C. Connop, Esq.

iv.—SHIELDS AND HELMETS.

According to Sir J. Evans' classification these come here. But the specimens connected with them are very few, and their date, whether Celtic or Roman, doubtful.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 39.	<p><i>Horton.</i></p> <p>Six fragments of what may possibly have been the rim of a wooden shield. Found with other things which were certainly Roman.</p>	Given by the Right Hon. the Earl of Shaftesbury.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 40.	<p><i>Near Dorchester.</i></p> <p>Stud or boss, probably belonging to a Roman shield. These studs were used for riveting together the hide and wicker or timber work forming the shield. $2\frac{1}{4}$ in. in diameter.</p>	<p>Given by E. Cunnington, Esq.</p>
xiv.	Br. 41.	<p><i>Belbury. Higher Lytchett.</i></p> <p>Several fragments of thin bronze, which look as if they may be part of the covering and of the rim of a wooden shield. See descriptive label in Case xiv.</p>	<p>With the Cunnington Collection.</p>
xiv.	Br. 42.	<p><i>Belbury (belonging to the same find as Br. 41).</i></p> <p>Two pairs of curious objects, the use of which is a puzzle. But Mr. Cunnington's opinion that they belonged to two helmets is a likely one. These things are thin and hollow. One sort is a very grotesque representation of a bull, with the legs rudely conventionalized, and a strange tail, curled over the back, and ending in a kind of flower. The other sort is shaped like a ridge tile. The hollow cylinder, forming the crest, has a hole at each end. Mr. C. thinks that the crest of the helmet had a bull affixed at its front or upper end, and one of the ridge-tile shaped things at the lower end; and that the holes in the latter were to receive a wire sustaining a hanging plume. It is probable that these holes also held wires whereby the bronze was fastened to the crest. For there are no rivet-holes in the side flanges of the ridge-tile shaped</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>objects. On the other hand, the bull has two such holes in each leg. In some of the holes the rusted iron rivets remain. See descriptive label.</p> <p>The late Sir A. Franks thought that these things were chariot-fittings, the bulls being for hitching the reins over. But Mr. C. justly considers that they are not strong or large enough for this purpose. Possibly the helmet chin-strap may have been hitched over them.</p>	

v.—PINS.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 43.	<p><i>S.W.R. Station, Dorchester.</i> (Classed here doubtfully. Very likely Mediæval.)</p> <p>Three pins. One $1\frac{1}{2}$ in. long, has a solid head, rather large in proportion. The others, $2\frac{1}{4}$ and $1\frac{1}{2}$ in. long, have twisted wire heads, like those of modern pins.</p>	With the Hogg Loan Collection.
xii.	Br. 44.	<p><i>Jordan Hill, Weymouth.</i></p> <p>A very curious pin, $3\frac{3}{8}$ in. long. The pin itself is carefully made with a slightly moulded head. But the remarkable thing is that immediately below the head, there has been fitted on to the shaft what may be called a large bronze bead, $\frac{1}{2}$ in. each way, of a truncated pear shape, fluted.</p>	With the Warne Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. a.	Br. 44a.	<i>Holwell, Cranborne.</i> Needle, 2 $\frac{1}{4}$ in. long ; eye damaged.	Given by Dr. Smart.
xiii. b.	Br. 45.	<i>Fifehead Neville.</i> Two plain pins, one without its head.	Given by C. Connop, Esq.
xiii. b.	Br. 46.	<i>Dorchester.</i> This large pin is a puzzle. It is 7 $\frac{1}{4}$ in. long, but has probably been 9in. The shaft is $\frac{1}{4}$ in. thick. At 3in. from the head, there is (apparently an original part of the shaft) a narrow, flat, lozenge-shaped piece of bronze attached to the shaft. The lozenge is 1 $\frac{1}{8}$ in. long. Opposite the lower end of the lozenge is a small eye. Down to this eye the shaft is covered with engraved ornament, mostly chevron, very shallow and delicate. The flat head 1 $\frac{1}{8}$ in. across, is extraordinary. Underneath it is plain. Above it is adorned with concentric ornaments in relief. Outermost is a circle of small conical projections, then one of ten little circular fillets, then two fillet concentric circles, and in the middle a little cone. This very strange object is thought to be a hair pin. The eye may be for a string to keep it in place. As regards size, it may be noted that at Coblenz there are, or of late years have been, in use, hair-pins quite as long, or very nearly so, but flat. They are called Pfeile.	With the General Collection.
xvi.	Br. 46a.	<i>Dorchester.</i> Imperfect large pin, or perhaps nail, consisting of a bronze half globular head $\frac{3}{8}$ in. wide, and an iron shank $\frac{1}{4}$ in. thick,	With the Hogg Loan Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 46b.	<p>2$\frac{3}{4}$in. long but with probably 2in. missing.</p> <p><i>Dorchester, Roman stratum.</i></p> <p>Fragment of a bronze pin consisting of a polygonal head $\frac{1}{2}$in. in diameter, through which passes the shank 3-10th in. thick. Only $\frac{1}{2}$in. of it remains.</p>	With the Hogg Loan Collection.

vi.—BRACELETS, ARMLETS, &c., AND RINGS OF VARIOUS KINDS, SOME FOR HARNESS.

These two sub-divisions will be taken as they come without attempting to classify the specimens as Roman or pre-Roman.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xv.	Br. 46c.	<p><i>Maiden Castle.</i></p> <p>Fragment of a bracelet; delicately ornamented.</p>	With the Cunnington Collection.
xv.	Br. 47.	<p><i>Wollaston Field, Dorchester.</i></p> <p>This bracelet is the most curious in this Museum. It is 3in. across, and $\frac{1}{4}$in. thick. It seems to be made of pottery or stone, possibly Kimmeridge shale, and to be plated with bronze. Two narrow flat plates cover the inner face of the bracelet—faces rather—the plates meeting at an angle. The outer face is covered by a plate of semicircular section, and apparently rather thicker than the others. This outer plate is divided into quarters by</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>shallow transverse mouldings, viz.: A cavetto bordered on each side by two fillets. In three places this group of mouldings comes singly. At the fourth place it is doubled, with an interval of $\frac{3}{4}$ in. between. And in this space there is a break, whether accidental or intentional may be a little doubtful. But most likely it was intentional, and each end of the penannular bracelet in that case probably had a slight enlargement or knob, of which some sign remains. The four divisions of the outside plate are differently and elaborately ornamented. The first to the left of the break, as the bracelet stands, is filled with diagonally crossing close lines. The second has similar lines further apart. In the lozenge shaped spaces thus formed are quatrefoils. The third may be described as also having a sort of cris-cross effect, but produced not by lines, but by what seem to be two rows of leaves with their points meeting, or slightly overlapping. On these little leaves minute lines are made. The fourth is bordered along each edge by a row of diagonal lines. Between these is a row of lozenges, in the middle of each of which is another lozenge bearing a quatrefoil. In each of the outer half lozenges is a minute circle. Of this elaborate ornament, the main features seem to have been cast with the plate. The slight lines appear to have been en-</p>	

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>graved. It is puzzling to see how this outer plate could have been applied to the bracelet. This difficulty may make it likely that the material of the bracelet is of the nature of pottery, and was worked into the hollow bronze plate, and the inner plates then soldered to the edges of the hollow one outwardly, and to one another inwardly.</p>	
xvi.	Br. 48.	<p><i>Dorchester.</i></p> <p>This seems to be a fragment of a Roman bracelet. It is richly if somewhat rudely adorned with arabesque foliage, in the midst of which is a human figure, apparently a boy playing on a pipe.</p>	With the Hogg Loan Collection.
xvi.	Br. 49.	<p><i>Albert Road, Dorchester.</i></p> <p>A solid, penannular oval bracelet, 2$\frac{7}{8}$in. by 2$\frac{1}{2}$in. The metal is $\frac{1}{4}$in. thick, quite plain, save that there are two shallow sunk lines around each extremity. Roman?</p>	Do.
xvi.	Br. 50.	<p><i>Albert Road, Dorchester.</i></p> <p>A slight rude penannular bracelet of flat wire. No ornament.</p>	Do.
xvi.	Br. 51. Br. 52.	<p><i>Near the Roman Wall, Dorchester.</i></p> <p>A very good pair of penannular torque bracelets, 2in. in diameter. Each is made of four wires closely and evenly twisted. At each end three of the wires are cut off short. The fourth wire projects about $\frac{1}{2}$in. One of these projections is twisted into a hook, the other into an eye. Both hooks are in the eyes. One end of Br. 52, has a little bronze band or ferrule, binding and</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		concealing the end of the wires, where the eye is. Probably the other three cut ends were so protected originally.	
xvi.	Br. 53.	<i>Dorchester.</i> An armlet of extreme slighthness, of plain thin wire. It is somewhat bent out of shape. As it stands, it is 3½in. by 3in. One end is flattened and bored to serve as an eye, and the other is fashioned into a hook.	With the Hogg Loan Collection.
xvi.	Br. 54.	<i>Dorchester.</i> An armlet bent out of shape, and slightly made. It is formed of flat wire, bent edge-ways. The edges of the rim are ornamented each with a row of small notches. The notches of one row alternate with those of the other. This gives to the outward circumference of the armlet a zigzag or vandyke appearance. No hook and eye.	Do.
xvi.	Br. 55.	<i>South Street, Dorchester.</i> From its slight rusting, this iron armlet seems to have been plated with bronze, and therefore is classed with objects of the latter metal. It is much out of shape. It is made of a rod about ¼in. thick. At each end it tapers greatly, and is made into a hook. These hooks are now on the same plane, but most likely were originally at right angles to one another so as to hook together. This may have been rather the handle of a can or small pail.	Do.
xvii.	Br. 56. Br. 57.	<i>Eglisham Field (?), Dorchester.</i> Found during the making of the Stratton Road, in connection with which a quantity	With the Cunnington Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>of soil was carted from that field, reducing it to a level. It is the water-meadow facing the northern part of Colliton Walk, Dorchester. In the course of this leveling it is believed that this fine pair of bracelets was found, and also the palstave, Br. 8.</p> <p>These massive bracelets are much honey-combed, giving the appearance of great age. The metal is of a semicircular section, the inner, flat face $\frac{5}{8}$ in. wide. From their weight, and from their being found with a palstave, it is probable that they were worn by a man; but he must have had small hands. The inside diameter, $2\frac{1}{2}$ in., would not admit a large hand.</p>	
xii.	Br. 58.	<p><i>Jordan Hill, Weymouth.</i></p> <p>An oval penannular plain armlet, $3\frac{1}{4}$ in. by $2\frac{3}{4}$ in. made of a roughly quadrangular rod about 3-16th in. thick.</p>	With the Warne Collection.
xiii. b.	Br. 59.	<p><i>Believed to have been found at Fifehead Neville.</i></p> <p>Half of a waist torque, $7\frac{3}{4}$ in. in diameter. The closely twisted metal is about $\frac{3}{8}$ in. thick.</p>	
xiii. b.	Br. 60.	<p><i>Near Woolland, Dorset.</i></p> <p>An annular armlet, labelled "British Armlet, found by Mr. W. W. Connop, near Woolland, Dorset, at the head of Locket's Stream, on the bank, about 1891." This armlet is quite uncorroded, and is of a curious blackish colour. It has patches of</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 31 to 66.	<p>a bright golden appearance, wonderfully like gilding. In the case of bronze daggers, however, Sir J. Evans pronounces this appearance to be deceptive. The armlet is quite without ornament, but it is remarkable for a gradual taper in the metal from 6-16th in. to 3-16th in. Its outside diameter is $3\frac{1}{8}$ in.</p> <p><i>Roman foundations, Fifehead Neville.</i></p> <p>Five penannular bracelets, and part of another. These are all of one type. They are fairly stout in make, apparently cast. The metal is flat within, slightly rounded without, about $\frac{3}{8}$ in. wide, tapering a little to the ends. 61, 63, and 65, have the ends slightly overlapping. The ends of 62 are a little thickened. The ornament consists of groups of sunk lines or mouldings at right angles to the length of the metal. In 61 and 66, some ornament appears in connection with these mouldings, but not in the others. The groups of cross lines are separated by three oblongs running lengthwise on the metal. These oblongs are variously ornamented with cris-cross lines, and with diagonal or vandyke lines of little circles and dots.</p>	Given by C. Connop, Esq.
xiii. b.	Br. 67.	<p><i>Fifehead Neville.</i></p> <p>A penannular torque bracelet, of rather stout make. It has been corroded down, or filed down, so that the convexity of the outer surface of the wires is almost done away with.</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 68. Br. 69.	<i>Fifehead Neville.</i> Two very slightly made bracelets. They are penannular, but look as if the circle may have been broken accidentally. Their ornament is a kind of milling on the outer edge.	Given by C. Connop, Esq.
xiii. b.	Br. 70.	<i>Fordington.</i> Two halves of a slender torque bracelet.	Given by the Rev. H. Moule.
xiii. b.	Br. 70a.	<i>Roman Well, Winterborne Kingston.</i> An imperfect and much bent torque bracelet.	Given by J. C. Mansel-Pleydell, Esq.
xiii. b.	Br. 71.	<i>Albert Road, Fordington, Dorchester.</i> An expanding femoral, if a new name may be used. This specimen is suspected of being unique in regard to its use, namely, to be worn above the knee. It was found in 1896, by Mr. Bull, foreman of the Borough Work, in digging a trench for a sewer. It was found tightly clasping a full sized human femur. In getting it off, it was expanded to its present diameter, 4in., and in doing this, it seems to have been strained, so as to lose its spring. A ring of the same size will not go over even a small man's knee. But one of the size of this specimen, if fully expanded, slips on with the utmost ease. This remarkable ornament consists of a rod of bronze about $\frac{1}{8}$ in. thick, tapered a good deal at the ends. Each end is twisted neatly round the rod, so loosely as to move easily on it. When not in use, the ring would contract, judging by the position in which it was found.	Lent by G. J. Hunt, Esq.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>The wearer would carefully expand it, slip it over his leg and knee, and then let it contract. Nothing is known of a second being found, nor of any coins or pottery to give a date. But graves with Roman pottery were found close by. It may be noted that these graves were in the limits of the Roman fossa. Sir J. Evans has no description of any similar ring in his hand-book, but in a letter he describes one of like construction and size. He does not, however, know where it was found.</p>	

RINGS OF VARIOUS KINDS.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 72, 73, 74.	<p><i>Dorchester. Roman stratum.</i></p> <p>Three plain rings, about $\frac{3}{4}$ in. in internal diameter, probably thumb rings.</p>	With the Hogg Loan Collection.
xii.	Br. 75, 76.	<p><i>Jordan Hill.</i></p> <p>Two plain rings, $\frac{5}{8}$ in. and 9-16th in. in internal diameter respectively. Perhaps finger rings, but 76 is small and also rough for this purpose.</p>	With the Warne Collection.
xiii. a.	Br. 77, 78, 79.	<p><i>Fordington.</i></p> <p>77 is a rough little ring about $\frac{3}{4}$ in. in outside diameter. It seems to be of iron, coated with bronze. 78 is 1 in. across, neatly made of a rod $\frac{1}{8}$ in. thick. Both these rings were found with, and almost</p>	Given by the Rev. H. Moule.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		certainly were connected with, 79. This is a snaffle bit with the rings ($2\frac{1}{2}$ in. in diameter), and the bronze eyes in which they are inserted very well made. These eyes are attached to a snaffle bar of iron, which, through rusting, has broken in two. See descriptive label.	
xiii. b.	Br. 80, 81.	<i>Fifehead Neville.</i> These, as regards their present size, may be called rings, but very possibly they are imperfect bracelets. 81 is of rather ornamented make.	Given by C. Connop, Esq.
xiii. b.	Br. 81a.	<i>Fifehead Neville.</i> A ring with slight ornament.	Do.
xiii. b.	Br. 82.	<i>Fifehead Neville.</i> A slight simple finger ring.	Do.
xiii. b.	Br. 82a.	<i>Barton's Town, Tarrant Hinton.</i> A rudely made ring, handle, or finger ring.	With the General Collection.
xiii. b.	Br. 83.	<i>Roman Well, Winterborne Kingston.</i> A torque, which like 80 and 81 may be an imperfect bracelet.	Given by J. C. Mansel-Pleydell, Esq.
xiii. b.	Br. 84.	<i>Near the Union Workhouse, Dorchester.</i> This small object, found with Roman things, seems to be of that epoch. It is now a ring, but seems to be the rim of what possibly may have been a thimble.	Given by G. J. Foster, Esq.
xiii. b.	Br. 85.	<i>Albert Road, Dorchester.</i> A well-made finger ring set with blue glass, the design on which is rude and puzzling.	Lent by G. J. Hunt, Esq.
xiii. b.	Br. 86.	<i>Near Dorchester.</i> A slender, slightly ornamented finger ring. On the small round bezil is what may be a cross.	With the Wolfe Collection.

No of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 87.	<i>Dorchester.</i> This seems to be a finger ring. It is of metal, about 5-16th in. in width. Two shallow flutings go nearly round its surface. Where they stop, and where there is a fracture, it is possible that a bezil may have been.	Given by C. J. Foster, Esq.
xiii. b.	Br. 88.	<i>All Saints' Glebe, Dorchester.</i> Two rings, 1in. in outer diameter, looped together. They may have belonged to harness.	Given by the Rev. S. E. V. Filleul.
xix.	Br. 89 to 94.	<i>Six little rings found at Somerleigh Court, Dorchester.</i> 89, imperfect and quite plain. 90, with a bezil for a stone or glass, now empty. 91, flat in the plane of its diameter. This can hardly be a finger ring. Possibly it is a little brooch which has lost its pin. 92, a ring of uncommon (?) shape. Half of its circumference is circular. The other half consists of a very small bezil, not socketted for a setting, joined to the curved part by two nearly straight pieces, one end of each forming a well marked angle where it unites with the curved portion. 93, another angular ring; within it is round, outside it is heptagonal. 94, a very small ring, only $\frac{1}{2}$ in. across within. Each edge is notched, the two sets of notches alternating so as to produce a zigzag pattern.	Given by Sir R. Edgcumbe.
xvi.	Br. 95 to 104.	<i>Dorchester.</i> Ten rings which for the most part require no special remark. Three, 98, 101, and 104	With the Hogg Loan Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 105.	are apparently roughly cast, and intended to have been filed smooth, which was never done. 96 is penannular. 103 is too large to be a finger ring. (Both 96 and 103 are very likely brooches minus their pins). <i>Dorchester.</i> "Found upon a skeleton." This ring is rather prettily ornamented.	With the Hogg Loan Collection.
xvi.	Br. 106.	<i>Dorchester, Beggars' Knap.</i> Found in a patera beside a skeleton. This is a very simple penannular ring, bent out of shape.	Do.

vii.—CLASPS AND BUCKLES.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xv.	Br. 107.	<i>Beggars' Knap, Dorchester.</i> A clasp or buckle not easy to describe, and to which various dates have been ascribed, from pre-Roman to Saxon. (Roman. Franks.) It is of cast bronze, 3½ in. long, 1½ in. broad, oblong, with semi-circular ends. At the middle of each end is a little circular projection in the same plane. On each side of each of these projections are similar ones, pierced so as to form what may be two eyelets at each end. Each end has within it a projection so	With the Cunnington Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>formed as to produce the effect of a double foliation. The straight sides are widened inwards and outwards, so as to be $\frac{3}{4}$ in. broad. The bronze where exposed has a fine patina. But it is much adorned. The front curved face of each end has seven squares of red enamel, separated by six squares of very dark blue, almost black, enamel. In the middle of each of these latter squares is a minute flower, partly red. The two middle projections at the ends seem to have had roundels of enamel, apparently red. Lastly, the face of the straight oblong side is covered with irregular interlaced gold lines, the interstices being brown enamel. There is no ornament at the back of the buckle, but the oblong side pieces have long hollows as if intended for enamel.</p> <p>It is difficult to understand the mode of using this buckle. At the back there is a stud at one end, the button of it $\frac{3}{4}$ in. across. At the other end there is a rivet, which looks as if it had originally been a similar stud. If this were all, one would have supposed that one stud was buttoned into one end of a leather belt, the other stud into the other end; and that through the eyelets were fastened laces for more security. But this seems disproved by what look like the catch of a pin at one end, and the remains of the attachment of a pin at the other end. If we accept this it is</p>	

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 108 to 114.	<p>hard to understand what the studs were for.</p> <p>With the buckle, there is a letter from Sir A. Franks, who says that this buckle is of the utmost rarity. He gives a slight sketch of one of two brooches found at South Shields. This South Shields specimen seems to be very much like the one here. The three are the only specimens known to Franks. He pronounces them to be Roman.</p> <p><i>Dorchester.</i></p> <p>Buckles not calling for detailed notice. Br. 110, is of the regular make, with a tongue or pin. All the rest are without a pin, having only a cross bar. Br. 111 and 112 are imperfect, 111 so much so as to make it doubtful whether it is a buckle or not. All are probably Roman.</p>	With the Hogg Loan Collection.
xvi.	Br. 115 to 117.	<p><i>Fordington Field and Dorchester.</i></p> <p>Three bar buckles like those in the last group, but larger. 115 is square, 116 dice box shaped, with a bluntly pointed projection at each end. This is adorned with a line across from side to side, and another from the point at right angles to the cross line. 117 is a double oval, like a figure of 8. 108 is much like it, but smaller.</p>	Do.
xiii. a.	Br. 117a.	<p><i>Boveridge House, Cranborne.</i></p> <p>Fragments of a brooch of thin flat cast bronze, adorned with graceful curved triple lines in relief. Late Celtic, Greenwell.</p>	Lent by H. W. Brouncker, Esq.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 118.	<i>Tarrant Hinton.</i> A double oval buckle like 108 and 117. Across one of the curves it has three lines or notches made with a file, it seems.	Given by the late Earl of Shaftesbury (?).
xiii. b.	Br. 119.	<i>Gallows Hill, Dorchester.</i> A buckle like the above, but imperfect. It has a small round projection from the middle of its remaining curve.	Given by C. J. Foster, Esq.
xiii. b.	Br. 120.	<i>Stoke Abbot, Bridport.</i> A little buckle so like modern ones, that it is hard to believe that it is Roman. Yet it was found with a fibula close by, and with other undoubtedly Roman things. In place of being made to be sewn on to the leather strap itself, it has an attachment of thin brass rivetted and folded round a bronze bar or pin, to which it seems that the leather strap was fastened.	Given by B. F. Hogg, Esq.
xiii. b.	Br. 120a.	<i>Roman Well, Winterborne Kingston.</i> Fragment of a disk-shaped ornamental brooch.	Given by J. C. Mansel-Pleydell, Esq.
xiii. b.	Br. 121 to 124.	<i>Somerleigh Court, Dorchester.</i> 121, 122, and 124 buckles like 119 and others of the 8 shape. But 121 is of importance, because, unlike all the rest of this construction, it has a pin. This pin is so slightly fastened to the bar by a mere twist, that the idea is suggested that all the other pinless buckles originally had pins, which have become loose and have been lost.	Given by Sir R. Edgcumbe.
xiii. b.	Br. 125.	<i>Somerleigh Court.</i> This seems to be a buckle of the same plan, but not cast like the others. It is	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 125a.	<p>now a simple hollow oblong punched out of a thin sheet of bronze. But there are two marks of fracture seeming to show that originally it was a double oblong. The side of the existing oblong, the side namely which was the middle bar, is slightly notched, probably to enable a pin to be attached more firmly.</p> <p><i>Gussage St. Michael, Field 53.</i></p> <p>A very curious buckle, $1\frac{3}{4}$ in. across, and $1\frac{3}{4}$ in. the other way. The bow is hinged to the bar by interlacing eyes. There have been three pins or prongs.</p>	Given by Miss Ward.

viii.—BROOCHES. ROMAN.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 126.	<p><i>Longbredy.</i></p> <p>These (126 and 126a.) are the only perfect bronze brooches in the collections. 126 is penannular, $1\frac{1}{8}$ in. across, the ends doubled back and slightly ornamented, the flattish ring having a faint cable moulding on it. The pin is twisted round the ring-metal so as to move freely on it, but to be stopped by the doubled ends of the ring.</p>	(?)
xiii. b.	Br. 126a.	<p><i>Charlton Marshall.</i></p> <p>The ends of the ring are formed into knobs. Section of the metal of the ring round.</p>	Given by J. C. Mansel-Pleydell, Esq.

No of Case.	No. of Object.	Locality, &c.	How procured.
xix.	Br. 127.	<p><i>Somerleigh Court, Dorchester.</i></p> <p>This seems certainly to have been a brooch like 126, but it is now without a pin. It is also rather larger, being $1\frac{1}{2}$ in. across.</p> <p>N.B. Br. 96 in case xvi. is catalogued with the rings, but almost certainly should be included among the brooches. So possibly should Br. 103 in the same case, although not penannular. In that case there is an annular silver brooch or buckle, which seems to be Roman. Whether these completely annular contrivances were buckles or brooches, <i>i.e.</i>, whether they were meant to fasten straps, or two portions of a dress, is difficult to decide.</p>	Given by Sir R. Edgecumbe.

ix.—FIBULÆ. ROMAN.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xv.	Br. 128.	<p><i>Maiden Castle.</i></p> <p>A plain harp-shaped fibula with the catch imperfect. Twisted union of pin to fibula.</p>	With the Cunnington Collection.
xv.	Br. 129.	<p><i>Dorchester.</i></p> <p>A good specimen, harp-shaped, but of rather remarkably bold curves both of fibula and pin. The fastening of the pin is without twisting. The fibula is of bold design. At the extreme end—the hinge</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 130.	<p>end—the metal is formed into a little ring, looking as if it might have had a lace or string through it for safety. From that to the actual joint of the pin, the metal opens out into a semicircle an inch across. Then comes the bar itself, widening a little to the middle each way, and at the middle formed into a slightly moulded projection, with a smaller one at the catch-end. This fibula is quite perfect, including the hinge of the pin.</p> <p><i>Dorchester.</i></p> <p>A rather small, but boldly designed fibula. Its hinge end is cross-shaped, the limbs round and slightly moulded at the extremities. The bar then swells into a semi-circular curve with an almost circular flange ornament formed on it near the lower end. Then, in line with the upper cruciform part, comes the tubular catch. The pin, perfect and quite sharp, seems to be welded into the fibula.</p>	<p>With the Hogg Loan Collection.</p>
xvi.	Br. 131.	<p><i>Dorchester.</i></p> <p>A very simple fibula, but of good shape. At the hinge end it has a cross bar from which the main bar rises in a bold long curve, and about the middle of this the bar thins and widens into a plate with its inner edge strongly curved and its lower edge turned upwards to form the catch. The pin, perfect and sharp, seems to have been hinged to the head of the fibula, but the construction there is a little out of order</p>	<p>Do.</p>

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 132.	<p>and is not easy to understand. A delicate fillet, dying away to nothing, adorns the top surface of the main bar, and there are fillets where that bar and the cross bar join.</p> <p><i>North Square, Dorchester.</i></p> <p>A roughly cast but remarkable fibula. It is like 130 in its somewhat cross-shaped upper end and in its semi-circular curve. But below this it is different. Of the remaining 1½ in. of its length, ¾ in. is thickened downwards so as to be of square section. On one side of this is a narrow slot, deep and widening within into a tubular form. This was the catch. The pin is gone. This fibula is a good deal ornamented, the cross ends being moulded, and the rest of the fibula having cross lines.</p>	<p>With the Hogg Loan Collection.</p>
xvi.	Br. 133 to 138.	<p><i>Found in the Surface Drainage Work, Dorchester, 1883.</i></p> <p>133 is a very curious fibula, at present only 1½ ins. long. It may be described as a narrow plain oblong, formed at each end into a thin blunt wide point. One point is imperfect and to it the catch must have been attached. The pin, hinged to a projection below the other point, has lost its small end. The oblong has a hollow upper surface, as if to hold enamel. 134. Quite perfect. At the upper end there is a plain cross bar. The curved main bar widens out to give room for a diamond-shaped bezil, which has probably been filled</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>with enamel. The pin is hinged and is perfect. There seems to be a spring in the shape of a small projection, pressing on the inner surface of the cross bar. 135 and 136 are very much damaged. 137 has lost its pin, but is a curious specimen, $1\frac{1}{4}$ in. long. It has a slightly adorned cross bar. Its main bar is wide and thin, the slightly convex upper surface having $7\frac{1}{2}$ diamond-shaped ornaments in low relief. Further, it has on each side a thin flange minutely serrated. At the small end, this main bar has three slight fillets partly round it, and a semi-circular projecting flange as a termination. 138, another small, imperfect, but most curious fibula, not easy to understand or describe. The flat, slightly-curved main bar, $1\frac{1}{2}$ in. long, has at the head a very thin, vertically flat cross bar, each projection only $\frac{1}{4}$ in. long. At half-an-inch from the head of the main bar, a thin, carefully-shaped, and slightly-ornamented strip of bronze is fastened to the upper surface by one rivet, on which it now can be turned, and rather looks as if it was always able to do so. This little strip reaches just beyond the head and its small cross bars. It is there bent into a little transverse eye or cylinder. Through this passes a bronze wire, which has each end twisted into a close spiral. The wire seems to have lain against the little cross bars, to which it possibly was fastened by delicate</p>	

No. of Case.	No. of Object.	Locality, &c.	How procured.
xii.	Br. 139 to 145.	<p>binding wire. Where the wire clears the cross bars the spirals come, and are turned so as to point towards the catch at the other end of the fibula. Possibly the wire below the spirals was straightened out and the two lengths united somehow so as to form a pin. But the whole make of this fibula is puzzling.</p> <p><i>Jordan Hill, Weymouth.</i></p> <p>Five backs and two pins of fibulæ. Only Br. 142 calls for remark. This is the back bar of a fibula of very light and graceful make. The bar is of round section, at the thinnest part hardly, if at all, more than 1-16th inch thick. At the hinge end it seems to have been worked into two side arms as usual, but these are broken off. Further, welded on to the bar, between the arms, or possibly forged as part and parcel of the bar, is the spiral spring of the pin. At the most projecting part of the curve of the harp-shaped bar is an ornament consisting of a fillet moulding surrounding the bar and a little projection from the outer side on each side of the moulding. These projections look as if they had been joined so as to form a ring or arch. The catch is curious. The ordinary little plate joined to the lower end of the bar, and at its outer edge curled up to secure the pin point, is of unusual make. It is not perfect. But it seems to have had four openings pierced in it. These reduced the plate to two slips each $\frac{1}{2}$ in. wide, and</p>	With the Warne Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 146 to 149.	three extremely thin ends or wires, not thicker than a thread. <i>Fifehead Neville.</i> Fragments of fibulæ.	Given by C. Connop, Esq.
xiii. b.	Br. 150.	<i>Dorchester.</i> A small cross-headed fibula, without its pin. On the bow is a slight hollow, perhaps for enamel.	Given by A. Emson, Esq.
xiii. b.	Br. 151.	<i>Charlton Marshall.</i> Fragment of a fibula.	Given by J. C. Mansel-Pleydell, Esq.
xiii. b.	Br. 152 to 155.	<i>Winterborne Kingston, in a Roman Well.</i> 152, a small imperfect fibula cross and ring-headed. It looks a little as if it had been plated. 153, a large fibula with fluting and other ornament. Pin gone and also the ring. The cross bar is unusually short. This has been a good specimen of the flat-barred, harp-shaped fibula. With the ring it must have been more than 3in. long. 154, a pin only. Note the shoulder or stop, whereby the springiness of the pin was able to be used to make it take the catch. 155, of no importance.	Do.
xiii. b.	Br. 156.	<i>Winterborne Kingston, Roman Well.</i> An imperfect fibula of the kind made of one wire beaten out at one end into a catch. The other extremity forms the pin. The curious twist forming a spring where the bow joins the pin is well seen.	Do.
xiii. b.	Br. 157.	<i>Stoke Abbot, Bridport.</i> A cross-headed fibula, the bow of triangular section and boldly curved. The pin is gone.	Given by B. A. Hogg, Esq.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 158.	<i>Cornwall Road, Dorchester.</i> A slight fibula, with a flat, narrow, gently curved bow. The pin is perfect, but the rivet is gone.	Given by G. Mitchell, Esq.
xiii. b.	Br. 159.	<i>Near Charminster.</i> Probably at the northern end of the parish in a field adjoining the road to Godmanston, west of that road. Here a handsome tessellated floor was found in 1891. A pair of tweezers (Br. 245) is from the same spot. They are in this case. This fibula (159) is by far the best in the Dorset Museum. In shape it is of the common cross-headed, flattish bowed type, and is quite perfect. But in decoration it stands alone in this Museum, for it is parcel-gilt and on the bow has three diamond-shaped bezils, two having blue enamel and the middle one red.	(?)
xiii. b.	Br. 159a.	<i>Somerleigh Court Garden, Dorchester.</i> Bow of a fibula, $2\frac{1}{4}$ in. long not following the bold curve. This bow is made of a thin strip of bronze, rolled over so as to be convex outwardly, flattish within. The plate or flange on which was the catch seems to be brazed between the meeting edges of the plate forming the bow. At the other end a strip of very thin bronze is rivetted on to the outer surface of the bow. This strip is imperfect. It seems to have formed part of the joint uniting the pin to the bow, or possibly it may have had to do with the spring.	Given by Sir R. Edgecumbe.

**The remaining Bronze Things will be
Classed as MISCELLANEOUS OBJECTS and taken as they come.**

No. of Case.	No. of Object.	Locality, &c.	How procured.
xv.	Br. 160 and 161.	<i>Maiden Castle.</i> Two thin rods of bronze. 160, bluntly pointed at one end and flattened towards the other, where is a slight sign of an eye, seems to be a bodkin. 161 may be one also.	With the Cunnington Collection.
xv.	Br. 162.	<i>Maiden Castle.</i> A minute, imperfect ring, and a round wide-headed nail.	Do.
xv.	Br. 163.	<i>Maiden Castle, from the site of a Roman House.</i> Fragment of a small statue—the breast. 4½ in. by 4 in.	Do.
xv.	Br. 164.	<i>Maiden Castle. Same site.</i> A very thin sheet of bronze 7¾ in. by 3¾ in. For about half its length it seems to have been rectangular, and above it tapered roughly to a point. It is much but coarsely decorated in repoussé or stamped work of very rude art. The chief object is a figure, apparently female, about 5 in. high, with helmet, lance, and what may be the ægis of Pallas. The figure stands in a rectangle bounded by cable moulding. The rest of the bronze is occupied by chevron-like, broad shallow ornament, except on the dexter side, where, imperfectly preserved, is what possibly may be a round shield. It has been suggested that this curious bronze may have been an ornament of a standard.	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xv.	Br. 165.	<i>Wollaston Field, Dorchester.</i> A good spoon, with the characteristic curve joining the bowl to the pointed handle.	With the Cunnington Collection.
xv.	Br. 166.	<i>Dorchester.</i> A very small key, $1\frac{1}{2}$ in. long.	Do.
xv.	Br. 167.	<i>Dorchester.</i> An aurist's instrument. (?) See Br. 206.	Do.
xv.	Br. 168.	<i>Wollaston Field, Dorchester.</i> A bronze fragment $1\frac{1}{4}$ in. long, with an oblong hole through it. Use?	Do.
xvi.	Br. 169.	<i>Fordington Field, Dorchester.</i> A curious thing of uncertain use. It is a roughly heptagonal tube, $1\frac{1}{2}$ in. long, $\frac{3}{8}$ in. in bore. On three of the faces it is curiously adorned with two parallel lines of minute triangular dots. Close to one end projects at right angles a thin flange, $\frac{3}{8}$ in. long, $\frac{1}{4}$ in. wide. On it are scratched VX. At the outer edge the flange bears a thin round rod, tapering and imperfect. It is slightly curved, but runs nearly parallel to the tube. This tube at the end by the flange is partially closed. At the other end a very slight, narrow strip of bronze divides the bore into halves.	With the Hogg Loan Collection.
xvi.	Br. 170.	<i>Fordington Field, Dorchester.</i> A stud, with shank imperfect, $\frac{3}{4}$ in. across.	Do.
xvi.	Br. 171.	<i>Arish Mill, East Lulworth.</i> A very rude figure of a cock, about 2 in. each way. On its back is a small narrow flower pot-shaped receptacle. It is suggested that this thing may be an ornament	Do.

No of Case.	No. of Object.	Locality, &c.	How procured.
		of a helmet. If so, the object on the cock's back was most likely for holding a plume.	
xvi.	Br. 172.	<i>Dorchester.</i> A Roman spoon, quite perfect.	With the Hogg Loan Collection.
xvi.	Br. 173.	<i>Dorchester.</i> A spoon almost certainly mediæval.	
xvi.	Br. 174.	<i>Dorchester.</i> A hanging drawer-handle of uncertain date. The actual handle may be described as an oblong with lower side and both ends slightly curved inwards, the upper side rising in two bold inward curves, which are united by a slightly curved cross-piece, which plays loosely in a roughly modelled closed hand. The hand, of course, was fastened to the drawer front, but it has lost the bolt for this purpose. The six-sided handle is made of rather thin bronze, about $\frac{3}{4}$ in. broad. The outer face is ornamented with a row of little punched circles.	Do.
xvi.	Br. 175.	<i>Dorchester.</i> A weight. Roman? ($3\frac{1}{2}$ oz.)	Do.
xvi.	Br. 176.	<i>Dorchester.</i> A puzzling spoon-shaped implement. The round bowl is only $\frac{5}{8}$ in. across. The shank is only 1 in. long, but has been more.	Do.
xvi.	Br. 177.	<i>Dorchester, Weymouth Road.</i> Roman tweezers.	Do.
xvi.	Br. 178.	<i>Dorchester.</i> A small ring, on which are hung a pair of tweezers and another little implement,	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		both imperfect. Possibly the second was like Br. 180. (On the same card with 178, &c., are several small bronze fragments and a small ring.)	
xvi.	Br. 179.	<i>Dorchester.</i> An imperfect, small Roman spoon, without the curved neck. Also a little rod which may be the shank of a spoon.	With the Hogg Loan Collection.
xvi.	Br. 180.	<i>Dorchester.</i> An aurist's instrument. See Br. 2c6.	Do.
xvi.	Br. 181.	<i>Gaol Grounds, Dorchester.</i> Near the tessellated pavements, of which fragments are in the Museum. A stylus, well made and perfect, but bent out of shape.	Do.
xvi.	Br. 182.	<i>Dorchester.</i> A small stylus, perfect but bent.	Do.
xvi.	Br. 183.	<i>Dorchester.</i> Three bronze nails, 1½ in. long.	Do.
xvi.	Br. 184.	<i>Dorchester.</i> A fragment, the use of which is unknown. A trefoil-shaped flat plate, about 1½ in. by 1¼ in. At its broad end it is hinged to a piece of bronze about ¾ in. thick, curved downwards, with a curved branch rising from it 1 in. away from the trefoil. Both branch and stem are imperfect. Then beneath the trefoil and nearly coinciding with its upper outline are two curved arms, part and parcel of the bar or stem. Both these arms are broken at the ends.	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 185.	<i>Dorchester.</i> A tool the use of which it is hard to understand. Just possibly it may have been for stamping leather or pottery. It is like a shallow gouge. But instead of having a sharp edge it has filed or sawn lines on each side, eight outside and apparently seven inside. These indented lines are alternate, so that the edge, pressed vertically down, makes a curved serrated impression. The edge is 1in. across. The tool tapers for 1½in. where the shaft begins. This is now ¾in. long, but is imperfect.	With the Hogg Loan Collection.
xvi.	Br. 186.	<i>Dorchester.</i> A fragment, possibly of a lamp. It is part of a round hollow vessel, ornamented with concentric fillets in relief. N.B.—On the same card are two small fragments of bronze, use unknown.	Do.
xvi.	Br. 187.	<i>Fordington Field, Dorchester.</i> This looks like a barrel-key with two opposite wards, which are broken off. The handle consists of two flat rings united, roughly 1in. and ½in. across respectively. The small one ends in two little knobs or projections. The flat surfaces are roughly engraved with slight ornament suggesting sprays of foliage. On the same card is a button of doubtful date.	Do.
xvi.	Br. 188. Br. 189.	<i>Dorchester.</i> Two flat-headed nails. 188, ⅝in. across; 189, 1½in.	Do.

No of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 190.	<i>South Street, Dorchester.</i> A very puzzling fragment, looking somewhat as if intended to represent a bent arm, but as it has been longer at the upper or thicker end most likely that was not the idea. The other end, what would be the fore-arm and fist if meant for an arm, is split. The fist is pierced as for a ring to hang it by. This suggests that this curious thing may been worn as a charm. It is very slightly and indistinctly ornamented. On this card is a spur, which, like several similar ones in the Museum, is of doubtful date.	With the Hogg Loan Collection.
xvi.	Br. 191. Br. 192.	<i>From a circular pit, Wareham Road, Dorchester.</i> A fragment of uncertain use. With it is the thin, flat bar of a fibula (192), which from its having some patina must have copper in it. On the other hand part of its surface is shining and silvery.	Do.
xvi.	Br. 193.	<i>Dorchester.</i> A nail 1½ in. long, square shank, round, flat head. See 183 in the same case.	Do.
xvi.	Br. 194.	<i>Dorchester.</i> A very curious thing, difficult to describe or explain. It may be defined as a thin bronze plate 2½ in. long, bent round into an incomplete pipe ¾ in. in diameter. On one edge this plate was bent outwards at about right angles. This projecting plate was then cut away partially so as to leave three rhomboids at equal intervals. These	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>are pierced and each carries a little wire eye. Two of these eyes have, and doubtless the third has had, rings inserted. Lastly, the tube, which is slightly ornamented, has three small holes, in one of which a pin remains. Doubtless the others also had pins. Is it possible that these pin-holes were to allow of the fastening of a thin wooden rod fitting into the pipe, and serving as a handle?</p> <p>Further, may the rings have carried little "hawks-bells," and may the whole thing have been a child's rattle?</p>	
xvi.	Br. 195.	<p><i>Dorchester.</i></p> <p>An imperfect rod, $2\frac{1}{4}$ in. long and $\frac{3}{8}$ in. thick. Its perfect end looks as if the whole thing is a model of a battering ram. The shank has very shallow but noteworthy ornament, consisting of three bands of arches. Just possibly this thing may have been the handle of a knife.</p>	With the Hogg Loan Collection.
xvi.	Br. 196.	<p><i>Dorchester.</i></p> <p>A fragment of pretty stout bronze plate $1\frac{3}{4}$ in. long, $\frac{1}{2}$ in. broad at one end, $1\frac{1}{2}$ in. broad at the other. This thing, imperfect and seeming to be bent out of shape, may just possibly be part of the handle of a vessel.</p>	Do.
xvi.	Br. 197.	<p><i>Orchard Street, Dorchester.</i></p> <p>Two spur frames, one almost perfect, the other a fragment. They are catalogued here with the utmost doubt, for some, perhaps most, antiquaries think them to be post-Roman.</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xvi.	Br. 198.	<i>Albert Road, Dorchester.</i> A little key, barrelled, the ring only $\frac{3}{4}$ in. across. Roman?	With the Hogg Loan Collection.
xii.	Br. 199. Br. 200.	<i>Jordan Hill, Weymouth.</i> Two small spoons, with round bowls and straight pointed handles. See 203.	With the Warne Collection.
xii.	Br. 201.	<i>Jordan Hill, Weymouth.</i> A clasp or double hook. It may be described as a hollow cigar-shaped object, each end of which is drawn out into a slender short pointed hook. The middle of the hollow part has a hole through it, at right angles to the plane of the hooks. The hollow part, again, is curiously adorned with four bands of engraved lines round it, united by others running lengthwise. $2\frac{1}{2}$ in. long.	Do.
xii.	Br. 202.	<i>Jordan Hill, Weymouth.</i> A little lamp, $1\frac{1}{2}$ in. each way, with three openings.	Do.
xii.	Br. 203.	<i>Jordan Hill, Weymouth.</i> A spoon like 199 and 200, but with the handle fluted.	Do.
xii.	Br. 204.	<i>Jordan Hill, Weymouth.</i> A stud or flat-headed nail, with the shank broken off. It is $\frac{7}{8}$ in. across and ornamented with a curvilinear hexagon, &c.	Do.
xii.	Br. 205.	<i>Jordan Hill, Weymouth.</i> A piece of metal, $2\frac{3}{4}$ in. long, $\frac{3}{8}$ in. broad in the middle, tapering to a blunt point at each end. It is curved, and within the curve the bronze is worked into a ridge or flange, tapering to nothing each way. At	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xii.	Br. 206.	<p>the thickest part, measured through the convex and concave faces, the object measures $\frac{1}{4}$ in. The flange has a small rivet hole through it in the middle. The outer face of the object is ornamented with fillets and other shallow mouldings, cross-wise in the middle, lengthwise at the ends. This thing seems to have been a fitting, fastened by means of the flange and a rivet to some appliance, probably of wood; but it is difficult to divine what this was.</p> <p><i>Jordan Hill, Weymouth.</i></p>	With the Warne Collection.
xiii. a.	Br. 207.	<p>An instrument, $5\frac{3}{4}$ in. long, a thin rod, with a band of moulding round it $\frac{1}{2}$ in. from one end. At this end there is a minute flat spoon, round, $\frac{1}{4}$ in. across. At the other end the rod or wire is slightly thickened out into a cigar-shaped termination about $\frac{3}{4}$ in. long. This instrument is thought to have belonged to an aurist. (On the same board are two other bronze objects, of not much account.)</p> <p><i>Thorney Down.</i></p>	
xiii. a.	Br. 208.	<p>Part of a javelin-head (?) $\frac{3}{4}$ in. long, cast hollow. The section is a curved rhomboid.</p> <p><i>Holwell, Cranborne.</i></p> <p>A little implement which may have been used, one end for making triple lines, the other single ones, on pottery. It is a thin slip of bronze $\frac{3}{4}$ in. long, nearly $\frac{1}{2}$ in. wide at one end, and tapering to a point at the other. The broad edge has two bits taken out of it, leaving three points or little prongs.</p>	Given by Dr. Smart.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 209.	<i>Near Cranborne (?)</i> . Handle of a vase, 5in. long.	Given by Dr. Smart.
xiii. b.	Br. 210.	<i>Holwell, near Cranborne</i> . Fragment of twisted wire, perhaps part of a torque.	Do.
xiii. b.	Br. 211.	<i>South Street, Dorchester</i> . Ladle for dipping up wine, 1ft. long. The end of the handle is hooked and fashioned into two ducks' heads, one slightly imperfect. The hook, doubtless, was for hanging the ladle to the rim of the large wine bowl, when out of use.	With the General Collection.
xiii. b.	Br. 212.	<i>Horton, Dorset</i> . Base of a vase, of brownish bronze, quite without patina. From its weight it may in part be of lead, with a thin coating of bronze, applied in some way which is hard to understand. The remnant of stem is cast hollow, the metal hardly 1-16th in. thick. The base consists of a disk rounded at the edge, or rather, brought to a blunt curved edge, disk about $\frac{1}{2}$ in. in section. Above and below this disk has a circular fillet about 2in. across. A fine casting. The disk has three minute holes drilled through it, in a row. It is difficult to explain them.	Given by the late Earl of Shaftesbury.
xiii. b.	Br. 213.	<i>Near Wareham</i> . With defaced coins, 1859. Two fragments of a lamp. The thin, much damaged bowl is $3\frac{1}{4}$ in. across at its widest part, but narrows in at the top. The flat upper portion is also damaged. It consists of a disk 3in. across, with a $\frac{1}{2}$ in. wick-opening	With the General Collection.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 214.	<p>in the middle. Round this and at the outer edge is a fillet. Part of the nearly flat handle remains. It is of curved outline, artistically blending with the circle of the top or cover into an ogee. Along the edges it is adorned with a shallow outer and deeper inner groove, leaving a fillet between them. The patina of the bowl is curious, showing patches of madder brown, with green about their edges.</p> <p><i>Dorchester (?)</i>.</p> <p>A hook 2½ in. long, but it has been longer. It is 1 in. across. This seems too large for a fish-hook, at all events for river use, and the absence of a barb is against its being for that purpose. On the other hand its shape and sharp point give it the appearance of a fish-hook.</p>	<p>With the General Collection.</p>
xiii. b.	Br. 215.	<p><i>Dorchester (?)</i>.</p> <p>A spout 2½ in. long over all. It seems to have been cast, and then roughly worked, partly with a file, into a rude dog's head, with the actual spout in the mouth.</p>	Do.
xiii. b.	Br. 216.	<p><i>Roman Well, Winterborne Kingston.</i></p> <p>Six thin fragments of bronze of uncertain use. One of them, marked A, seems to be mediæval, having on it a repoussé F, apparently of that epoch.</p>	<p>Given by J. C. Mansel-Pleydell, Esq.</p>
xiii. b.	Br. 217.	<p><i>Fifehead Neville.</i></p> <p>Fragment, 4½ in. long, of a curved rim of possibly a wooden shield. It has three rivet holes. With it is a little bit of bronze bent round. It may have been a handle.</p>	<p>Given by C. Connop, Esq.</p>

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 218.	<p><i>Dorchester.</i></p> <p>A rude little female figure, 3in. long. It is cast hollow. The features have been almost wholly worn away. The head-dress, with its lappels falling over the breast, suggest that the figure is meant for Isis or some other Egyptian goddess. The arms are placed across the body. The lower limbs are concealed by drapery, or what seems to be meant for it.</p>	With the General Collection.
xiii. b.	Br. 219.	<p><i>Dorchester.</i></p> <p>A helmeted female bust, 1½in. long, probably meant for Minerva. Towards the lower end of the back are the remains of a rivet. The little bust may have been a helmet ornament.</p>	Do.
xiii. b.	Br. 220.	<p><i>Near Dorchester.</i></p> <p>An implement consisting of a thin, fluted, and prettily twisted quadrangular rod, 5in. long over all, at one end beaten out into a spoon ½in. long, and at the other end into what seems to have been a similarly-shaped termination, but flat. This part is imperfect. Possibly this may have been a modelling tool.</p>	Given by the Honble. Mrs. Ashley.
xiii. b.	Br. 221.	<p><i>Dorchester (?)</i>.</p> <p>Perhaps a stylus. It is a thin, slightly curved, round rod, 4½in. long over all. At each end the rod is worked into a four-sided, fluted point, ¾in. long. This has been called a Roman stylus. But from an article and figure in the <i>Archæological Journal</i>, V. 161, it may seem to be a</p>	Given by J. Garland, Esq.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>mediaeval stylus, or "greffe," a much rarer thing.</p>	
xiii. b.	Br. 222.	<p><i>Dorchester.</i></p> <p>A solid stemmed, simple key, only $1\frac{3}{8}$ in. long.</p>	Given by J. Garland, Esq.
xiii. b.	Br. 223.	<p><i>Dorchester.</i></p> <p>A statuette of Mercury, $3\frac{3}{4}$ in. high over all. He is sitting on a rock of lead, to which the statuette is fastened by little pegs or dowels, cast in the bronze. The workmanship is rough, but not inartistic. The figure has not the petasus or hat, nor the caduceus or serpent-twined rod, nor the winged feet, all characteristic of Mercury. But from the crumena or purse in the left hand, wings on the head, and from the identity of the general design with that of the fine bronze Mercury of Herculaneum, there is no doubt as to the attribution of this statuette. It was found more than 140 years ago. (See Hutchins' "Hist. of Dorset," ed. i., Vol. I., p. 38.)</p>	Given by —. Stone, Esq.
xiii. b.	Br. 224.	<p><i>Westham, Weymouth.</i></p> <p>A statuette of Hercules, standing $4\frac{3}{4}$ in. high over all. It is very rudely cast.</p>	Given by the Rev. A. Gordon.
xiii. b.	Br. 225.	<p><i>Charlton Marshal, Blandford.</i></p> <p>A pair of tweezers of better make than other specimens here. See Br. 178 and 245. Br. 225 is not made like the others of a simple flat strip of bronze. The arms are brought to a convex shape outwardly. At the upper end they are beaten out into an oval flat shape, and are joined with a</p>	Given by J. C. Mansel-Pleydell, Esq.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 226.	<p>rivet in the middle. Above the riveted part a round ring for hanging up is fashioned, the metal being there also round in section. These tweezers are in good working order now. $2\frac{3}{4}$in. long over all.</p> <p><i>Dorchester.</i></p>	With the General Collection.
xiii. b.	Br. 227.	<p>A little ornament, perhaps intended for a flower bud. It is $\frac{3}{4}$in. long, and has two rivets for fastening it at the back. Possibly it was an ornament of harness. See Br. 233. It is of very irony bronze.</p> <p><i>Dorchester.</i></p>	
xiii. b.	Br. 228.	<p>This seems to be a bronze, or rather copper, lamp, crushed entirely out of shape. It contains a dark substance, which seems to be the remains of oil. (With it was found what seems to be a much honey-combed fragment of an early celt, like Br. 3.)</p> <p><i>Fifehead Neville.</i></p>	Given by C. J. Foster, Esq.
xiii. b.	Br. 229.	<p>A fragment ($2\frac{1}{2}$in. long) of a tube about $\frac{3}{8}$in. across. At one end it is bent, crushed, and broken off. Across the other end a thin square bit of bronze, $\frac{1}{2}$in. long, is soldered. Use unknown.</p> <p><i>Fifehead Neville.</i></p>	
		<p>A fragment $\frac{3}{4}$in. long, imperfect at both ends. It is boldly curved and concave outwards in section. From a width of $\frac{5}{8}$in. at one end it tapers to $\frac{3}{16}$th inch at the other. Across the wide end there is a sharply-formed semi-circular depression. No explanation of the use of this thing can be offered.</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 230 and 230a.	<i>Fifehead Neville.</i> Fragments of two spoons.	Given by C. Connop, Esq.
xiii. b.	Br. 231 and 231a.	<i>Fifehead Neville.</i> Two fragments, perhaps, of the same ornament. Each consists of a piece of very thin bronze $1\frac{1}{4}$ in. long, widening from a blunt point to a width of about $\frac{7}{8}$ in. This wide edge is a fracture. The sides are slightly curved, and along each of these curved edges is a row of diagonal dents, giving somewhat the effect of a cable moulding. Near each point is the remains of an iron pin or rivet. These objects were doubtless ornaments, or parts of one ornament, to be riveted on leather or wood.	Do.
xiii. b.	Br. 232.	<i>Fifehead Neville.</i> A ferule, well and boldly moulded. It is $\frac{7}{8}$ in. long and $\frac{5}{8}$ in. across inside.	Do.
xiii. b.	Br. 233.	<i>Fifehead Neville.</i> This thing is of the same sort as Br. 226, but is a better specimen. It is $1\frac{5}{8}$ in. long and $1\frac{1}{8}$ in. across where widest. It is curved in section, convex outwardly. In shape it may be described as a heart with the end formed into a trefoil. At the back it has two rivets of its own substance. These have their points clenched over, showing that the material to which this ornament was fastened was perhaps quite $\frac{3}{8}$ in. thick. On and between the rivets is a remnant of this material, which may have been leather. Each rivet has a little metal	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 234.	<p>washer near its point. This ornament may have been fastened to harness, or possibly to a shield.</p> <p><i>Fifehead Neville.</i></p> <p>A very puzzling little object. It is a slight pipe, $\frac{5}{8}$in. long and $\frac{1}{8}$in. in bore, closed at one end. At this end, at right angles to the pipe, is a slightly ornamented ring, $\frac{3}{4}$in. one way over all, $\frac{5}{8}$in. the other.</p>	Given by C. Connop, Esq.
xiii. b.	Br. 235.	<p><i>Fifehead Neville.</i></p> <p>Two little strips of thin bronze, about $\frac{3}{4}$in. by $\frac{3}{8}$in., joined near one end by an iron rivet. This looks like a guard to preserve the end of a narrow strap. The bronze is slightly ornamented with minute notches along the edges, and with two little concentric circles. It has been longer.</p>	Do.
xiii. b.	Br. 236.	<p><i>Fifehead Neville.</i></p> <p>A bronze nail like Br. 183 and 193, but with the flat head curiously out of centre as relates to the shank.</p>	Do.
xiii. b.	Br. 237.	<p><i>Fifehead Neville.</i></p> <p>A stylus $5\frac{1}{4}$in. long, of very irony bronze. It has been a pretty specimen, the stem being pentagonal and separated from the rounded point by a band of moulding. It is a good deal covered both with red rust and green patina.</p>	Do.
xiii. b.	Br. 238.	<p><i>Fifehead Neville.</i></p> <p>Two wires or thin rods, about 5in. and 4in. long respectively. The longer one may be of iron, is a good deal bent, and is</p>	Do.

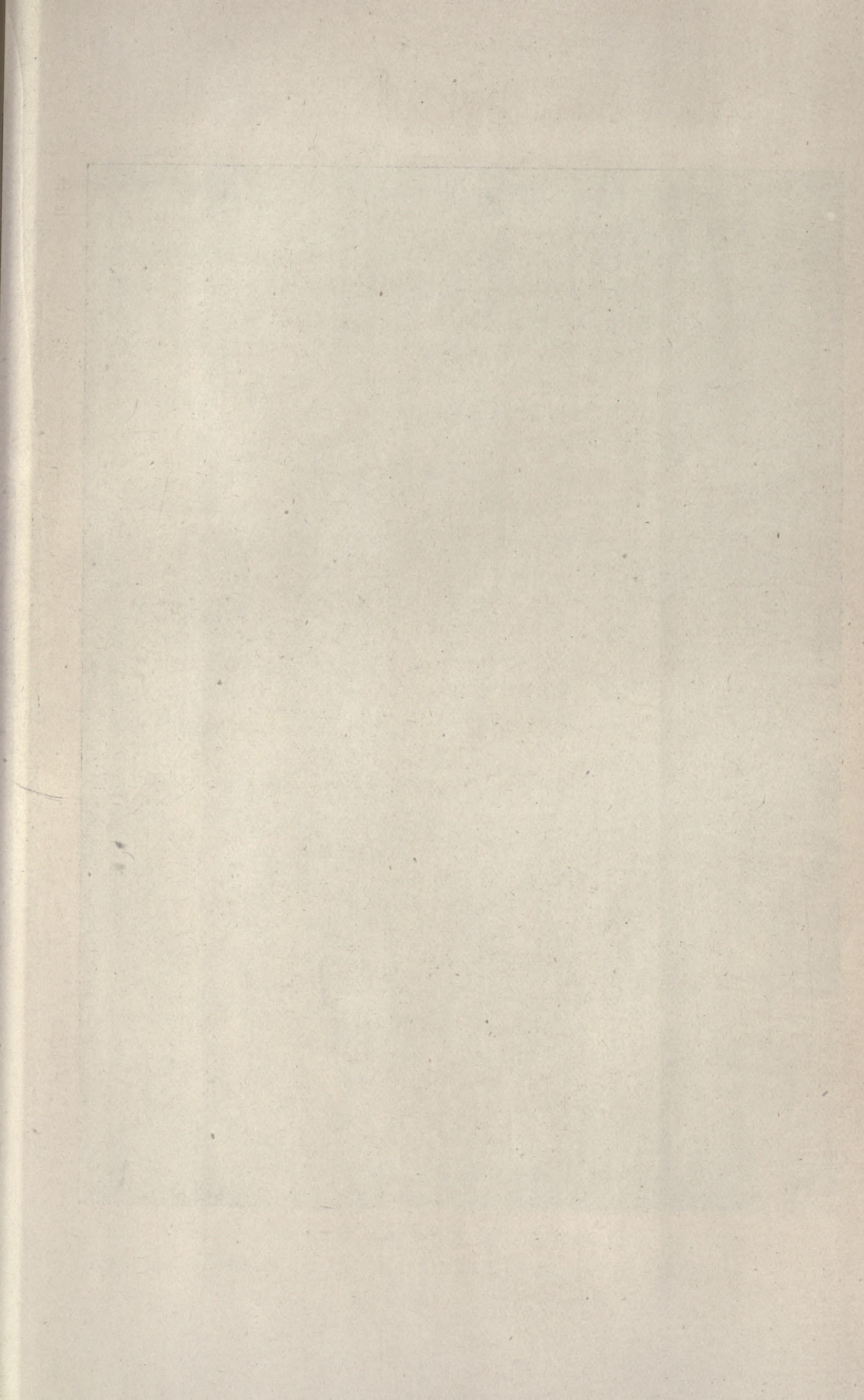
No. of Case.	No. of Object.	Locality, &c.	How procured.
		broken at both ends. Use unknown. The other, a mere wire, of the thickness of a large common pin, is pointed and bent into a little hook at one end, and seems to have been pointed at the other end also. This little object, the use of which it is hard to define, has a fine patina.	
xiii. b.	Br. 239.	<i>Fifehead Neville.</i> A little staple about $\frac{3}{4}$ in. each way.	Given by C. Connop, Esq.
xiii. b.	Br. 240.	<i>Fifehead Neville.</i> A thin disk, $1\frac{1}{2}$ in. across, imperfect. It is stamped into concentric ornaments. Probably it was fastened by a central pin or rivet, to a shield or to harness. (On the same card are several other small imperfect objects.)	Do.
xiii. b.	Br. 241.	<i>Roman Well, Winterborne Kingston.</i> A fragment of an apparently circular, cast, ornamented object. On one side a small ring projects. This possibly may be part of a brooch.	Given by J. C. Mansel-Pleydell, Esq.
xiii. b.	Br. 242.	<i>Barton's Town, Tarrant Hinton.</i> This round pointed square-tanged object, $1\frac{3}{4}$ in. long, looks like an arrow-head. The shoulder of the pointed part is encircled by a band of simple ornament.	With the General Collection.
xiii. b.	Br. 243.	<i>Barton's Town.</i> This, too, may possibly be an arrow-head. It is a flat bit of bronze, 2 in. long, fashioned into a spear-shaped point, the extreme end of which seems to have been broken off. The other end is formed into a tang. The tang is much bent.	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
xiii. b.	Br. 244.	<i>Barton's Town.</i> This may be classed with Br. 242 save that it is larger, being $3\frac{3}{8}$ in. long, and that the point is polygonal.	With the General Collection.
xiii. b.	Br. 245.	<i>Charminster Parish, North End.</i> Site of a Roman house, where was a fine piece of tessellated floor, now utterly destroyed. A pair of slight, simple tweezers, imperfect.	Given by E. Cunnington, Esq.
xiii. b.	Br. 246.	<i>Near Corfe Castle.</i> A pair of compasses $6\frac{1}{4}$ in. long, nearly perfect. The two legs are joined by a rivet of the form of a round-headed, curved, stout nail $\frac{5}{8}$ in. long. This is secured by a substantial pin passing through a hole in the shank of the rivet. The pin, like the rivet, is curved. The upper half of the legs is a good deal ornamented with cross and diagonal lines, apparently cast. It may be noted that the compass ornamented disk of Kimmeridge shale in xii. a. was found pretty near.	Do.
xiii. b.	Br. 247.	<i>Quatre Bras, near Dorchester.</i> Iron tang of a dagger, with bronze fittings. It is $3\frac{1}{2}$ in. long. At the upper end is a hollow, diamond-shaped piece of pretty stout bronze, $1\frac{1}{2}$ in. by $1\frac{1}{8}$ in. This is still firmly united to the end of the iron tang which passes through it. Then at intervals of $\frac{3}{4}$ in. are three oval bands about $\frac{1}{2}$ in. wide and about $\frac{7}{8}$ in. by $\frac{5}{8}$ in. across. These bands are all in place, the intervals between their inner surfaces and the $\frac{1}{4}$ in.	Given by J. F. Hussey, Esq.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>square tang being filled with oxidized remains of the handle, apparently of wood. The outside of the bands is ornamented with two or three pairs of shallow lines round them. "This may possibly be Celtic, of the early Iron Age"—(Canon Greenwell).</p>	
xiii. b.	Br. 248.	<p><i>Somerleigh Court Garden, Dorchester.</i></p> <p>Seven little ornaments, or fragments of ornaments, of doubtful use. No. 3 from the top may be the pendant of an earring.</p>	Given by Sir R. Edgecumbe.
xiii. b.	Br. 249.	<p><i>Somerleigh.</i></p> <p>A pair of compasses, 3in. long. They are very well made and quite perfect.</p>	Do.
xiii. b.	Br. 250.	<p><i>Somerleigh.</i></p> <p>A slender ointment spoon, 5in. long. It consists of a thin rod, at one end of which is a narrow spoon-bowl, 1½in. long and ¾in. wide. At the junction with the bowl the rod is slightly moulded. At the other end the rod ends in an egg-shaped piece, ½in. long and 3-16th inch thick. Perhaps this was wrapped in wool, and dipped in the ointment, which was thus applied to a sore or wound. (See a similar end on an aurist's instrument, Br. 206.)</p>	Do.
xiii. b.	Br. 251.	<p><i>Somerleigh.</i></p> <p>A little hammer-head, 2in. long. It is not clear whether this small tool was cast or hammered and filed into shape. Its hammer surface is roughly round, ¾in. across. Above it comes a rather clumsily-made groove all round. Then for ½in. it</p>	Do.

No. of Case.	No. of Object.	Locality, &c.	How procured.
		<p>tapers. Then comes the flat, oval centre, in which is the hole for the handle. This hole seems to have been drilled, and is only $\frac{1}{4}$ in. across. From the centre piece the bronze, still flat, widens out to $\frac{1}{2}$ in. broad. The end is square across. In the middle of this end is a notch, giving the tool the look of a claw-hammer. But in its present state it could not be so used, and there is no appearance of the claws ever having tapered in a curve to a greater length so as to fit them for drawing a nail. Indeed the smallness of this tool seems to prove that it could not have been so used. The lightness of this hammer and the thinness of the handle, as shown by the hole, make it likely that it was used only for very fine work, perhaps on gold.</p>	







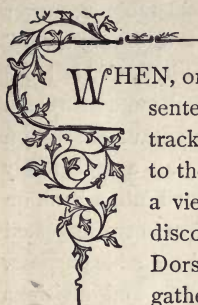
SECTION OF A SUPPOSED ROADWAY FROM TOWN TO AMPHITHEATRE DISCOVERED IN EXCAVATING FOR NEW STORES
ADJOINING THE DORCHESTER BREWERY. AUGUST 2ND, 1899.



An Ancient British Trackway.

By ALFRED POPE.

(Read Dec. 19th, 1899.)



WHEN, on the invitation of your Hon. Secretary, I consented to read a few notes on a supposed British trackway discovered in excavating for an addition to the Brewery premises at Dorchester, it was with a view to bringing the facts connected with the discovery before the antiquarian members of the Dorset Field Club, so as to raise a discussion and gather their views and opinions thereon. I do not pretend to a knowledge of the subject myself, but rather give you the ideas I have borrowed from the late Mr. Charles Warne through his "Ancient Dorset," and from conversations on the subject with our good friend Mr. Moule, who is always so willing to impart the knowledge he possesses for the benefit of others less well informed.

The ancient Britons, as is well known, had two kinds of roads or trackways quite distinct from each other. The first one, which we will for the purpose of distinction call a roadway, was formed by the throwing up of a bank or causeway of considerable width with a ditch of considerable depth on either side. A good example of this kind of roadway may be seen near the circle of stones or "Druids' Temple" at Pokeswell,

where the road may be seen ascending the hill from the west close to and partially broken by a large stone quarry, thence passing a few yards to the left of the "Temple." Another example of this type of road may be seen in some portions of the Via Iceniana or Roman road on the crest of the hill on the Dorchester side of East Compton Down, such portions probably being originally British, but adapted by the Romans in making their long straight road leading from Silchester through Durnovaria past Eggardon Hill to the ancient Isca, the modern Exeter. These roads were adapted for and doubtless used by the ancient Britons for the wheel traffic of their cars or chariots, in the use of which the Britons like the Gauls were, according to Cæsar, most expert.

The minor roads or trackways were considerably narrower than those just described, and the term "hollow or covered way" has been applied to this latter type of road by Sir R. C. Hall and other antiquaries, conveying the idea of having been constructed for the purpose of affording shelter, concealment, or protection to the traveller. These were formed by digging a moderately broad and deep ditch and throwing up the soil into a bank on one or both sides of the excavation, and it has been suggested that many of these earthworks may have served a double purpose, namely, as "ways" and also as boundary lines and divisions between the property of contiguous tribes.

The ancient trackway discovered at Dorchester, and of which I now produce photographic sections for your inspection, is of the latter type. It appears to have run from the southern entrance of Durnovaria, in a southern direction, diverging slightly towards the east, but almost parallel to the old turnpike road to Weymouth—which was formed on the causeway of a Roman Vicinal Way given off by the Via Iceniana as it passed through Durnovaria, and is continued straight over Ridgeway Hill to the shore at Radipole—somewhat to the east, or possibly under the eastern embankment of Maumbury Rings, which, if correct, practically disposes of the theory, held by some, that it was the road from the town to this ancient Roman Amphitheatre.

Whilst the excavation was still open I carefully took the dimensions of the dyke, and found it to be 5ft. 4in. in depth, 6ft. 6in. in width at the bottom, and 8ft. 3in. wide on the top, and that it had been filled with a mixture of chalk and soil, evidently thrown in from the eastern side, as may be seen from the strata in the photograph. The bottom of the trench is somewhat rounded, but does not show signs of the crushing and wear of the chalk which would be expected in a roadway used for wheel purposes, the conclusion being that it was a minor trackway used principally for foot and horse traffic. This trackway was also struck some 40 yards to the north of where the section above referred to was taken in the year 1880, when the Brewery buildings were erected, and again some years later in digging the foundations for a wall on the south side of the County Police Barracks, when the same indications which have been described were clearly perceptible, the sides having been sharply and regularly cut and not worn in the chalk. In each case it had been filled up with a mixture of mould and chalk. (A short account of the opening of the trench will be found in Vol. VII., p. 67, of the Club's Proceedings.) Although on careful inspection the direction of this trench or track did not favour the view that it led to the adjoining entrance to Maumbury Rings, but that it rather passed to the eastward thereof, the fact must not be lost sight of that in the year 1879, on the occasion of a visit of this Club to the county town, a trench some eight or nine feet deep was dug across the northern entrance of this Amphitheatre for the purpose of finding the "girt stone," supposed to be buried there, but of which, however, no trace could be seen, when a roadway some five or six feet wide, and as deep, formed in the chalk, was discovered of much the same character as that struck near the Brewery, so that the view held by some that the dyke was the roadway from Durnovaria to the ancient earthwork is feasible; and this theory is strengthened by the fact that on examining the railway cutting to the east of the Amphitheatre I have been unable to discover any trace of the Trackway having been continued over the line of railway.

Another of these supposed trackways was struck in Dorchester some 15 years since in the cutting to the east of the railway bridge on the Wareham Road. On the sides of the railway cutting being carefully scraped down in the fresh face of the chalk a notch, or dyke, clearly appeared, which must have been equally visible when the cutting was made, but of which no record seems to have been kept at the time. On each bank was a large superficial notch filled in with earth. These can be seen now, although not so clearly as when the chalk was in fresh whiteness.

Some time after the discovery Wareham House was built close by, to the south of the cutting. On the garden being laid out the notch in the face of the cutting was found to be part of a trench running right across the ground, slanting slightly westwards, so as to strike the high road from Dorchester to Wareham. So large was this trench that it was quite worth while, for the improvement of the soil of the garden, to empty the trench of its filling of earth and spread it on the surface, making all level again with chalk. This trench was, by experts, believed to be a trackway of Celtic times.

The late Rev. William Barnes rather thought that a hollow old trackway in the belt of wood close to Came Rectory entrance gate is part and parcel of this crossing Wareham House garden. Mr. Strahan, one of the Government geologists who have examined this neighbourhood, was much interested in what he believed to be a fragment of a very ancient roadway in Whitcombe Farm, running north and south, which might be a further continuance of this ancient trackway, and which possibly might have led to the great Celtic village of Bindon, Lulworth.

A very interesting account of British trackways, all converging on the ancient Celtic town of Vindogladia, is to be found in Warne's "Ancient Dorset" (page 23), where there also appears a very good map of Vindogladia Celtica, showing no less than ten British trackways, some being of the larger and more important kind first described, and others minor roads or trackways of the hollow or covered type to which the two I

have mentioned as being struck here at Dorchester seem to belong.

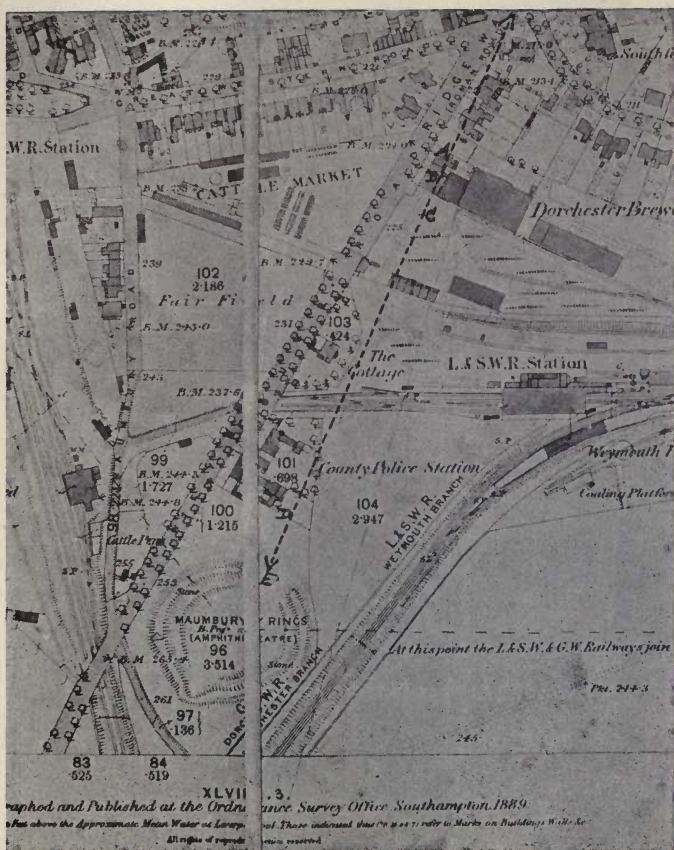
I think it may be fairly assumed that the wider and more important British roadways were chiefly for wheel and cart traffic, whereas the minor trackways which were sunk and afforded considerable shelter, were used for horse and foot traffic. That they were the roads or ways of the ancient Britons there can be little doubt, as in almost every case they are found leading direct to some well-known British settlement or town, and are invariably found in connection with the earthwork of their own period, and it is in the vicinity of these that they are more easily examined.

I am sorry I have not been able to throw more light upon this subject, which I fear has been but very indifferently brought before you. It is one which, although interesting, appears to have been little studied, and upon which it is somewhat difficult to find reliable information. If, however, by ventilating the subject the views of those members of the Club of greater experience and better able to judge of the use of these dykes or trackways than myself can be elicited, I shall feel that my time and yours has not been altogether lost in its discussion.

NOTE.—Since writing this paper I have, on the suggestion of the Rev. W. M. Barnes, made a more careful survey of the direction of the supposed trackway and marked its exact course, so far as I have been able to follow it on the Ordnance Survey map, and noted the places where it was cut through thereon. It appears to have been first struck at the point E in the year 1879 at the northern entrance of the Amphitheatre, as already stated; next a year later at the points A and B on the building of the Brewery offices. Then it was cut through again about the year 1890 on the extension of the police barracks, when the Rev. W. M. Barnes made a careful examination of the excavations there and a section to scale, which I understand from him is deposited in the County Museum, and lastly it was struck during the present year at the point C, where the photograph of the section above referred to was taken.

Mr. Warne tells us that the arena of the Amphitheatre was ten feet below the present level; if this were so, the sunken way would have come in at a level with the floor of the arena, and the direction of the trackway, as mapped out, would certainly tend to favour the views taken by Mr. Barnes that it was the road from the ancient Durnovaria to the Roman Amphitheatre.





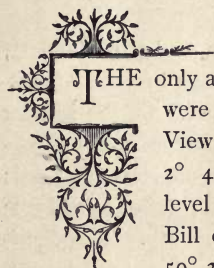
DIRECTION OF ROADWAY FROM AMPHITHEATRE TO TOWN SHOWN BY
 DOTTED LINE.
 OF SUPPOSED BRITISH TRACKWAY BY FAINT LINE.
 DECEMBER 15TH, 1899.



Returns of Rainfall, &c., in Dorset in 1899.

By HENRY STORKS EATON

(Past President of the Royal Meteorological Society).



THE only additions to the stations where observations were taken this year are Beaminster, Tower View, in N. Latitude $50^{\circ} 48' 20''$, W. Longitude, $2^{\circ} 44' 25''$, the gauge being 205ft. above sea-level; and Portland High Lighthouse, Portland Bill of the Meteorological Office, in N. Latitude $50^{\circ} 31' 15''$, W. Longitude $2^{\circ} 27' 20''$, 178ft. above the sea. Both instruments are 5in. in diameter with the receiving surface 1ft. above ground. The losses are Haselbury Bryan Rectory; Lyme Regis, St. Michael's College; Steeple, Creech Grange; Thornford Rectory; and Wyke Regis, Markham House. With the exception of Bloxworth Rectory the daily returns have been given at length. At several stations the rule of making the rain-day terminate with the morning observation and entering the rain to the previous day has been disregarded. In all such cases, where detected, the entries have been assigned to bring them into conformity with the usual

custom. The Hamworthy register is again imperfect and irregularly kept. When there is any uncertainty the figures are in italics.

The Tables have been arranged as on previous occasions, with an additional one (Table V.) shewing the distribution of Rainfall on days of Thunderstorm during the great heat and on days of heavy general rain.

The driest month was March. January, February, April, and November were wet. But the most noticeable feature of the year was the long dry summer weather with rain below the average from May to October. The rain, too, was very unequally distributed, falling in local thunderstorms of great severity. Consequently while the ground was much parched in places the country elsewhere was fairly off for moisture.

The ratio of the rainfall deduced from 37 stations, compared with the period 1848-97, was as 90·1 to 100. It varied from 80·9 at Horton and 82·7 at Cattistock to 106·9 at Dorchester and 106·5 at Herringston.

An inch or more rain was measured on 1 day in January, February, April, May, and October; on 2 days in July, August and December; and on 6 days in November. Of the heavier falls, when the average of the whole county exceeded three-quarters of an inch, the amount was 1·29in. on November 3rd; 1·07in., November 9th; ·9in., September 5th; ·85in., April 13th; ·84in., October 27th; and ·78in. on November 4th. The distribution of rain in the more severe thunderstorms of July, August, and September, and on 2 days in November, when the average exceeded an inch, is shown in detail in Table V. Another thunderstorm on the 3rd of August produced ·83in. of rain at Chickerell, Montevideo, and ·78in. at the Rectory; ·74in. at Portland Bill; ·71in. at Portisham; ·66in. at Fleet; ·59in. at Wyke; less elsewhere. There was no rain at many of the eastern stations.

Electrical disturbances were noticed on the 7th, 12th, and 13th of February; the 12th and 16th of May; 28th of June; 11th and very generally from the 21st to the 24th of July; the

3rd, 7th, and 15th of August, and from the 5th to the 7th of September.

In the great thunderstorms of July many casualties from lightning are mentioned in the Press as having occurred at Sherborne, Gillingham, Motcombe, Shaftesbury, where "hail-stones fell the size of a florin but much thicker," Upper Wynford, Compton Valence, West Stafford, Watercombe, East Burton, Wool, and Wareham. At the latter place magnificent sunsets were noticed on the 19th and 20th; and between 8 and 9 p.m. on the 21st the sky overhead glowed for a short time with a fiery red. The drought over North Dorset was broken about 5 p.m. on the 22nd by a storm lasting 2 hours. The general progression of the storms was from north-west eastwards. The grain crops were not much damaged, as there was but little wind.

OBSERVERS' NOTES.

BEAMINSTER, TOWER VIEW.—Average highest temperature:—Jan. $46^{\circ}5$, Feb. $47^{\circ}7$, March $49^{\circ}6$, April $54^{\circ}2$, May $60^{\circ}3$, June $70^{\circ}6$, July $73^{\circ}2$, Aug. $74^{\circ}8$, Sept. $66^{\circ}3$, Oct. $58^{\circ}1$, Nov. $53^{\circ}0$, Dec. $43^{\circ}1$. Average $58^{\circ}1$. Highest maximum on Aug. 3rd $84^{\circ}6$. During the year there were 80 days with the shade maximum above 70° , and of these 45 were consecutive from the 14th of July to the 27th of August. Lowest reading of the barometer corrected to sea-level $28\cdot42$ in. on December 29th; highest $30\cdot77$ in. on November 17th.

BERE REGIS VICARAGE.—July 22nd. We were on the edge of the great thunderstorm. A cottage at Buddens, near Hyde, was struck by lightning, the roof being shattered. A large hole was made in the centre of the ceiling of the downstairs room. The storm was really on the morning of Sunday, the 23rd.

On Sunday, the 23rd of July, after a week of intense heat, we were visited by a memorable thunderstorm. Wareham seems to have been the centre of the storm, and, fortunately for us, we were more or less on the outskirts of it. At Wareham the Church Tower was struck by lightning. At Binnegar Hall $2\cdot85$ in. of rain was recorded at 9 a.m. and $1\cdot1$ in. fell later in the

day. Our rainfall was only 1·20in. in the two storms, at Bloxworth Rectory 1·09in. The lightning and thunder were quite appalling. On Thursday, September the 7th, the severest thunderstorm that has been felt at Kingston for years passed over the village. The morning was hot and close, and about one o'clock a terrific storm broke right over the village. It came up without the slightest warning. The rain fell in torrents, and the hailstones at Muston were as large as marbles. A flash of lightning struck a chimney on a house, splintered a large beam in the ceiling, passed down the chimney, broke the china in the sitting room, and passed through the kitchen and out of the door. Throughout the whole storm, which only lasted an hour, the sun was shining on Bere Wood, and at Bere Regis itself hardly any rain fell.—W. A. N., in Bere Regis and Winterbourne Kingston Parish Mag., Aug. and Oct., 1899.

BLOXWORTH RECTORY.—Rainfall in November was on 8 days 4·60in., falling from 3rd to 9th inclusive. On the 3rd 1·52in., on 9th 1·08in. Heavy thunderstorm on September 6th from 6 to 9 a.m. A small apple tree in my orchard was struck and the bark ripped off; much larger and taller apple trees were round this one on all sides from 20 to 30ft. off, but none were touched.

BROADWINDSOR VICARAGE.—May: Strong dry easterly winds till 10th. July 21st: Thunder; 22nd: Thunderstorm nearly all night. September 5th: Thunderstorms evening and night. October 27th: Steady rain whole day. December 11th: Snow followed by rain; 13th: Snow.

CHALBURY RECTORY.—Highest temperature 82° on August 3rd. Lowest 22° on March 21st, 22nd, and December 13th and 14th. Only one fall of rain in the year exceeded an inch, namely, on November 3rd; but there was scarcely any cessation of the fall till late in the afternoon of November 4th; so the continuous downpour amounted to 2·13in.

CHEDDINGTON.—On the night of August 3rd from 9 till 11 o'clock very heavy thunder was heard, the lightning being brilliant and continuous. On June 5th and 6th, July 19th, and

August 15th and 24th, the thermometer rose to 87°. On December 15th it fell to 17°.

CHICKERELL, MONTEVIDEO.—On 25 days rain fell to a less amount than '01in.

CHICKERELL RECTORY.—February 4th and March 21st and 23rd snow. October 22nd very heavy dew, almost '005in.

DORCHESTER WATERWORKS.—The bulk of the abnormal rainfall (2'56in. entered to the 22nd) fell in one hour between 7 and 8 a.m. on Sunday morning (23rd), accompanied by heavy thunder. I should say that the record for the hour named would be close on 2in.

DORCHESTER, WOLLASTON HOUSE.—The heavy rain (2'40in.) entered against July 22nd really fell in the morning of the 23rd in about 3 hours; a remarkable downpour.

GILLINGHAM.—August 15th: There was a very heavy thunderstorm with rainfall for the day of 1'67in. Of this 1'60in. fell in $\frac{3}{4}$ -hour from 2 to 2.45 p.m., with large hailstones.

HAMWORTHY.—I am doubtful of the correctness of the (register for the) early part of March and of April, being away at that time.

HORTON VICARAGE.—January 24th-29th, 6 frosts in succession; February 22nd-March 12th, 17 ditto; March 18th-25th, ditto. Thermometer, 18° on March 21st, 24th, 25th. On June 28th, hailstorm doing much damage, the stones being the size of broad beans. July 15th-22nd, 8 warm days in succession, 80°-91°; July 25th-August 7th, 14 ditto, 80°-92°. Highest maximum in screen, 94° June 5th. September 6th, thunderstorm 4 hours, rain '65in. September 7th, thunderstorm 1 hour, rain '71. December 15th, lowest temperature 15°. Temperature taken in screen 4 feet from the ground.

PORTLAND, CHESIL.—February 12th, thunder and lightning; 13th, thunder, lightning, hail. July 22nd, lightning and thunder after 9 p.m.; 23rd, frequent lightning and thunder. August 3rd, considerable lightning and thunder; 4th, summer lightning; 7th, lightning and thunder. September 5th, lightning and thunder in evening and at night; 6th, frequent lightning, prolonged thunder and very dark, barometer rising slightly.

SWANAGE, VICTORIA HOTEL.—September 6th, very heavy thunderstorm from 6 a.m. to 9.30 a.m., in which time 2.2 in. of rain fell.

VERWOOD MANOR.—The features of the year were the spells of dry (rainless) weather; from the 16th of February we had 20 days without rain, from the 27th of July (excluding the 3rd and 7th of August) 31 days, and from November 12th 19 days.

WAREHAM, BINNEGAR HALL.—The rainfall for 1899 is 1.98 in. above the average of the years 1887 to 1898 both inclusive, notwithstanding the great drought. The heavy thunderstorms of Sunday, July 23rd, with a fall of 2.85 in. and 1.11 in., largely causing this. The 2.85 in. fell almost entirely between 6.30 a.m. and 9 a.m., flooding every low ground and washing out the roads, causing considerable damage.

WINTERBOURNE HERRINGSTON.—July 23rd, Sunday, .96 in. of rain fell in one hour and a-half before 8 a.m. with very heavy thunder. Subsequently .60 in. fell in 15 minutes about 5 in the afternoon. Up to the 22nd of July we had no thunderstorms.

WINTERBOURNE HOUGHTON.—January: On 13 days the maximum temperature exceeded 50° , the highest being 54° , the minimum of the month 23° . February 11th: A high temperature of 58° was recorded; thunderstorms at noon on the 7th and about 4.30 p.m. on the 13th resembled in character summer storms; minimum temperature $24^{\circ} 5$. March: Extremes of temperature $61^{\circ} 5$ and 21° . April: 60° and 29° . May: 69° and 31° . June: 82° and 41° . This was a warm month, on 21 days the thermometer reached 70° and above. July was another hot month. On 26 days the maximum temperature rose above 70° , and on 8 above 80° . The extremes of temperature were 85° and 47° . The 23rd was rather remarkable for a thunderstorm from 6 to 10 a.m. from the N.W., an unusual quarter for the production of thunder in the summer. August was the hottest month of the year. The maximum temperature exceeded 70° on 28 days, and on 9 days reached 80° and above. Extremes of temperature $86^{\circ} 5$ and 47° . September: On the 6th a heavy

thunderstorm passed over, lasting from 6 to 10 a.m. Extremes of temperature 83° and 38° . October range of temperature 64° to 34° . November: 59° on 3 occasions and 31° . December: 55° and 18° . Snow fell on the 13th and 16th.

WINTERBOURNE STEEPLETON.—The longest drought lasted 21 days—from the 28th of May to the 17th of June, both days inclusive.

TABLE I.—MONTHLY DEPTH OF RAIN IN INCHES IN 1899.

Observer.	Station.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
J. C. P. White	Abbotsbury, New Barn ..	3.84	3.46	.46	3.22	1.03	1.26	.92	1.24	1.77	1.54	3.90	3.74
J. Andrews ..	Beaminster, Tower View ..	5.87	4.07	.60	3.31	1.41	1.52	.72	1.51	1.86	2.57	4.82	3.70
Rev. A. A. Leonard	" " " "	5.96	3.92	.58	3.19	1.37	1.51	.75	1.46	2.00	2.46	4.93	3.94
Rev. W. Farrer	Bere Regis Vicarage ..	4.18	3.26	.68	3.08	1.03	1.49	1.39	.97	1.58	2.33	4.67	2.93
F. D. Lys	" " Whiteavington ..	5.29	3.80	.95	3.23	1.14	1.61	1.39	1.07	2.06	2.37	5.21	2.95
Rev. O. P. Cambridge	Bloxworth Rectory ..	4.71	3.58	.80	3.12	1.15	1.32	1.39	.68	2.28	2.35	4.81	2.55
H. Gordon ..	Britport, Coneygar Hill ..	4.70	4.12	.46	3.55	1.06	1.49	1.96	1.16	2.56	2.23	4.99	3.31
H. Gordon ..	" " West Bay Road, Portville ..	4.06	3.69	.44	3.29	1.04	1.23	2.42	1.18	2.37	2.05	4.51	2.94
E. Baunton ..	Broadwey ..	4.53	3.66	.50	3.49	1.06	1.67	1.94	.80	2.16	2.28	4.68	3.60
C. E. M. Pinney	Broadwindsor Vicarage ..	6.42	4.05	.56	3.50	1.57	1.57	1.92	1.57	1.79	2.60	4.90	3.24
Rev. W. H. H. D'Aeth	" " Blackdown House ..	6.10	4.54	.60	3.45	1.74	1.43	.93	1.59	2.16	2.59	5.13	3.60
H. H. Palaret	Buckhorn Weston Rectory ..	3.24	2.45	.34	2.54	1.73	.93	1.31	1.18	2.61	1.59	3.77	1.96
Rev. G. H. Billington	Catistock Lodge ..	5.70	4.54	.65	3.57	1.59	1.65	.82	1.87	1.80	3.27	5.67	3.60
G. Jones	Chalbury Rectory ..	3.86	3.27	.73	2.95	1.34	1.21	.24	.90	3.03	2.36	4.32	1.75
Mrs. Richardson	Chetlington Court ..	5.43	4.27	.59	2.86	1.45	1.35	.48	1.44	2.39	2.50	4.99	4.07
Rev. S. Poole	Chickerell, Montevideo ..	3.91	3.28	.52	3.22	1.20	1.48	.97	1.24	2.55	1.73	4.18	3.48
L. W. Pike	" " Rectory ..	3.70	3.14	.51	3.15	.90	1.34	1.08	1.28	2.39	1.70	4.04	3.07
G. J. Hunt ..	Corfe Castle, Furzebrook ..	5.02	3.81	.67	3.54	1.21	1.60	3.53	.56	3.66	2.63	5.39	2.08
Captain J. E. Acland	Dorchester Waterworks ..	5.50	4.00	.71	3.53	1.36	1.61	3.23	2.11	2.89	2.33	5.10	4.19
Mrs. George ..	" " Wollaston House ..	5.87	4.07	.76	3.66	1.24	1.37	2.83	1.97	2.91	1.91	5.33	4.42
S. H. Stephens	Fleet House ..	4.35	2.89	.62	3.19	.89	1.28	1.04	1.25	2.33	1.33	4.32	4.99
A. L. Scott	Gillingham ..	4.60	3.69	.61	2.69	1.91	1.22	1.21	2.71	3.03	1.99	4.42	2.65
Rev. Canon R. F. Wheeler	Hamworthy ..	3.68	2.96	.26	3.22	1.18	.75	.40	1.84	2.75	2.24	4.15	1.32
G. Coffin	Haselbury Bryan Rectory ..	4.93	5.58	.65	3.05	1.53	1.19	1.26	1.37	2.11	2.90	4.68	3.22
Rev. G. Wellington	Holwell, Westrow ..	4.82	3.88	.74	3.09	1.20	.66	1.80	1.27	1.83	2.73	4.62	1.90
Rev. W. P. Schuster	Horton Vicarage ..	3.98	3.56	.70	3.23	1.32	1.55	.22	.78	2.81	2.55	4.46	2.41
R. Rintoul ..	West Lulworth Vicarage..	4.12	3.24	.40	3.21	1.11	1.20	1.26	.89	2.56	2.08	4.46	2.41
	Melbury Sampford..	5.48	4.38	.70	3.31	1.70	.85	1.62	1.41	2.03	3.22	5.45	3.70

TABLE I.—(CONTINUED.)

Observer.	Station.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
R. H. Barnes	Parkstone, Heatherlands	3.96	3.40	.67	2.54	1.24	1.24	.51	.41	3.56	2.25	5.05	2.22
W. Symes	Portsmouth	4.26	3.75	.48	3.71	1.23	1.44	1.21	1.99	1.98	1.82	4.38	3.51
W. Pender	Portland Bill, High Lighthouse	..	..	..	..	..	..	1.24	1.67	2.32	1.74	4.29	2.94
Rev. W. R. Waugh.	Chesil	..	..	.45	2.98	..	..	1.02	.99	2.11	1.51	4.42	3.45
Miss L. M. Harris	Shaftesbury	..	2.80	2.82	3.02	1.09	1.10	2.36	2.30	3.13	2.44	4.62	2.85
S. Creed	Sherborne, Coombe Farm	..	4.38	.66	3.01	1.98	1.28	.85	1.00	2.70	2.51	4.72	2.99
Rev. J. Cross	Sturminster Marshall, Bailie House	..	4.29	3.60	.81	3.10	1.17	1.58	.92	2.41	2.73	4.87	2.32
A. R. Hallett	Sturminster Newton, Riverside	..	3.43	3.59	.27	2.61	1.19	1.47	.83	1.98	2.47	4.64	2.80
Rev. H. Pix	Swanage	..	4.12	3.07	.57	2.71	.98	1.36	.54	.56	2.09	4.67	2.17
H. B. Vincent	Victoria Hotel	..	3.95	3.21	.49	2.22	.88	1.32	.43	.40	4.49	4.59	2.05
W. R. Fryer	Verwood Manor	..	4.12	3.37	.83	3.36	1.36	1.62	.43	.73	2.46	4.40	2.11
S. W. Bennett	Wareham	..	4.31	3.22	.64	2.93	1.08	1.40	.54	2.84	2.01	4.56	2.31
O. C. Farrer	" Binnegar Hall	..	4.38	3.79	.70	3.18	1.25	1.23	.71	2.53	2.15	4.76	2.59
I. J. Brown	Weymouth, Nothe	..	3.89	2.93	.58	3.14	.92	1.05	.86	2.33	1.67	3.89	3.28
Dr. G. H. Batterbury	Wimborne, Codford	..	4.36	3.74	.92	3.16	1.41	1.87	.96	.55	2.36	4.83	2.67
Major-General P. Maclean	Rowlands	..	4.19	4.67	.78	2.22	1.16	1.82	.97	.44	2.00	3.86	2.51
R. B. White	Winterbourne Herrington	..	5.17	4.15	.44	3.80	1.08	.82	2.48	1.73	2.95	2.79	4.12
Rev. H. H. T. Bassett	" Houghton Rectory	..	4.91	4.29	.58	3.34	1.42	1.19	.95	2.24	2.22	3.17	4.60
H. Stilwell	" Steepleton Manor	..	5.59	4.34	.73	3.93	1.44	1.99	2.01	2.67	2.54	2.26	5.77
J. C. Mansel-Pleydell	" Whitchurch, Whatcombe	..	4.90	3.86	.82	3.25	1.34	1.42	.90	1.32	2.67	3.29	2.80
Mrs. Pretor	Wyke Regis, Belfield House	..	3.91	.58	.30	1.03	.75	1.52	1.02	2.60	1.70	4.17	3.44
Sir Cuthbert E. Peek	DEVON.	..	..	..	..	..	..	..	..	..	..	..	..
General Pitt-Rivers	Rousdon	..	3.80	.38	3.73	1.21	1.11	.98	1.75	2.20	2.34	3.67	2.98
General Pitt-Rivers	WILTS.	..	..	..	..	..	..	..	..	..	..	..	..
General Pitt-Rivers	Larmer Grounds	..	4.90	.61	3.47	1.78	1.55	.43	1.16	2.73	2.82	4.96	2.32
General Pitt-Rivers	Rushmore	..	4.37	.72	3.37	1.80	1.52	.69	1.53	2.78	2.81	5.00	2.08

TABLE II.—(CONTINUED).

Station.	Total.	Greatest fall in 24 hours.		Days of		Number of Days on which .01 in. or more was recorded.												Year.
		Depth.	Date.	In. or more.	.01 in. only.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Portsmouth ..	In. 29.76	1.19	Nov. 9	3	16	24	11	10	20	10	4	9	6	12	7	10	18	141
Portland Bill, High Lighthouse	..	1.29	" 5	..	..	..	..	..	..	..	..	3	8	12	9	8	18	..
Portland, Chesil	1.00	" 9	1	19	21	10	8	18	8	4	5	6	12	9	9	19	124
Shaftesbury	31.20	July 22	5	26	23	12	8	23	12	5	9	9	20	9	16	21	165
Sherborne, Coombe Farm	30.04	Nov. 3	2	19	22	12	9	22	11	5	9	9	19	9	12	19	158
Sturminster Marshall, Bailie House	..	29.06	" 1.50	3	2	17	20	11	7	16	11	5	6	8	14	11	11	139
Sturminster Newton, Riverside	..	27.97	" 1.46	3	2	13	10	4	15	6	5	5	8	16	7	10	13	112
Swanage	27.46	Sept. 5	3	8	19	10	5	17	7	6	5	5	17	7	8	20	126
Victoria Hotel	26.07	" 1.43	3	10	20	12	4	16	7	5	4	5	14	8	7	20	122
Verwood Manor	27.25	Nov. 3	1	9	22	11	5	20	9	6	8	7	15	7	10	17	137
Wareham	28.64	Nov. 23	3	9	21	9	4	16	8	5	6	4	12	8	10	19	122
" Binnegar Hall	31.92	July 22	4	24	21	12	5	20	9	6	7	5	15	11	12	23	146
Weymouth, Nothe	24.97	Dec. 12	2	14	18	12	7	17	7	5	5	5	12	8	8	14	118
Wimborne, Codford	29.13	Nov. 3	2	18	24	12	8	19	10	8	5	5	15	8	12	21	150
Rowlands	30.50	" 1.80	3	0	18	11	4	10	8	7	4	4	13	7	8	12	106
Winterbourne Herrington	34.38	Dec. 12	4	7	..	..	..	..	..	..	..	..	..	..	..	..	119
" Houghton Rectory	32.10	Oct. 27	3	7	17	11	5	16	8	5	5	7	15	7	7	15	118
Steepleton Manor	37.47	Nov. 9	7	15	23	12	12	20	12	4	7	7	14	10	9	20	150
" Winchurch, Whatcombe	..	31.93	" 3	4	19	22	12	13	21	8	6	8	7	18	11	12	19	157
Wyke Regis, Belfield House	27.30	" 1.02	1	4	20	11	5	17	9	3	6	4	9	7	9	13	113
DEVON.																		
Rousdon	29.31	Nov. 9	5	5	22	14	6	20	12	4	8	8	17	8	11	20	150
WILTS.																		
Larmer Grounds	30.76	Nov. 3	3	11	20	13	7	19	10	6	5	6	19	8	8	16	137
Rushmore	31.44	" 1.30	3	1	21	13	6	18	10	6	5	6	19	8	10	16	138

TABLE III.—AVERAGE MONTHLY RAINFALL.

	1899.				44 years, 1856-1899.		
	Average of 47 Stations.	Proportionate fall (a). Difference from 44 years average (b).		Days of '0lin. or more.		Proportionate fall (c). Do. corrected for inequality of days (d).	
	In.	(a).	(b).		In.	(c).	(d).
January ..	4·567	153	+55	21	3·295	978	951
February ..	3·623	121	+47	11	2·495	740	808
March ..	·605	20	-49	7	2·311	686	682
April ..	3·190	107	+41	18	2·238	664	672
May ..	1·271	43	-16	9	1·984	589	582
June ..	1·357	45	-21	5	2·222	659	657
July ..	1·372	46	-25	7	2·380	706	692
August ..	1·251	42	-36	6	2·639	783	761
September ..	2·524	85	-8	14	3·127	929	949
October ..	2·322	78	-39	8	3·984	1172	1152
November ..	4·729	158	+52	10	3·572	1060	1073
December ..	3·050	102	-1	18	3·484	1034	1021
Year ..	29·861	1000		134	33·695	10000	10000

TABLE IV.—STATISTICS OF THE TEMPERATURE OF THE AIR,
AND OF THE HUMIDITY AND AMOUNT OF CLOUD
AT WINTERBOURNE STEEPLETON MANOR AT
9 A.M., FORWARDED BY MR. H. STILWELL.

1899.	Temperature of Air.							Humidity. Saturation = 100.	Cloud. Overcast 10.
	In Stevenson Screen.					On Grass.			
	Averages of			Extremes.		Average Lowest.	Lowest.		
	Highest.	Lowest.	Daily.	Highest.	Lowest.				
	°	°	°	°	°	°	°		
January ..	47·0	36·5	42·0	53·0	23·3	30·6	13·7	88	6·9
February ..	48·4	35·0	41·7	55·9	21·8	29·0	13·1	88	7·6
March ..	50·0	32·0	40·7	60·2	16·5	24·3	8·0	80	4·6
April..	51·8	39·9	45·6	58·0	27·0	34·7	19·2	82	7·7
May ..	57·0	41·8	48·9	66·4	30·2	36·4	21·0	75	6·1
June ..	69·1	47·4	57·5	77·6	33·4	40·6	25·9	70	5·2
July ..	71·0	53·5	61·6	81·4	45·8	47·8	39·8	73	6·1
August ..	74·5	52·7	62·9	82·0	42·4	47·1	37·3	73	4·6
September ..	65·3	49·7	57·1	77·3	34·4	44·1	28·5	77	6·0
October ..	58·5	40·2	49·1	63·9	26·9	36·8	22·4	88	6·3
November ..	53·2	42·1	47·8	58·9	26·8	38·7	22·9	88	7·3
December ..	43·2	31·9	37·8	55·0	19·0	28·7	15·0	88	7·7
Year ..	57·4	41·9	49·4	82·0	16·5	36·6	8·0	81	6·3

TABLE V.—RAINFALL ON DAYS OF THUNDERSTORM,
AND OF HEAVY RAIN.

	July.				Aug.	September.				November.	
	21	22	23	Tot.	15	5	6	7	Tot.	3	9
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Abbotsbury	·15	·40	·25	·70	..	·75	·08	..	·83	1·18	1·00
Beamminster, Tower View	·04	·15	·19	·38	..	1·11	·01	·01	1·13	1·25	1·25
" Vicarage ..	·06	·19	·18	·43	..	1·18	..	·02	1·20	1·28	1·25
Bere "Regis	·01	·77	·43	1·21	..	·46	·09	..	·55	1·43	1·03
" Whitelovington ..	·01	·72	·42	1·15	..	·54	..	..	·54	1·56	1·10
Bridport, Coneygar ..	·05	1·52	·14	1·71	..	1·20	·01	·03	1·24	1·17	1·41
" Portville	·07	1·92	·14	2·13	..	1·15	·01	..	1·16	1·13	1·18
Broadway	·15	1·60	·07	1·82	..	·83	..	..	·83	1·22	1·18
Broadwindsor	·04	1·15	·29	1·48	..	1·05	·02	·09	1·16	1·29	1·09
" Blackdown ..	·01	·33	·06	·40	·01	·98	..	·21	1·19	1·34	1·24
Buckhorn Weston ..	..	·82	·32	1·14	·45	·78	·15	·04	·97	1·17	·61
Cattistock	·03	·33	·20	·56	..	1·13	·01	·02	1·16	1·38	1·24
Chalbury	·01	..	·01	·02	..	·58	·03	·92	1·53	1·44	·87
Cheddington	·02	·18	·10	·30	..	1·34	·06	..	1·40	1·24	1·18
Chickerell, Montevideo	·14	·53	·26	·93	..	·81	..	..	·81	1·13	1·06
" Rectory	·16	·54	·31	1·01	..	·79	·01	..	·80	1·03	1·03
Corfe Castle, Furzebrook	·10	1·40	1·86	3·36	..	1·25	..	..	1·25	1·43	1·23
Dorchester, Waterworks	·11	2·56	·33	3·00	..	·77	·03	..	·80	1·42	1·30
" Wollaston House	·10	2·40	·12	2·62	..	·82	·01	..	·83	1·37	1·37
Fleet	·15	·60	·22	·97	..	·76	..	..	·76	1·30	1·07
Gillingham	·02	·88	·01	·91	1·67	·66	·12	·04	·82	1·32	1·00
Hamworthy .. ..	..	..	..	·40	..	1·47	·17	..	1·64	1·18	·82
Holwell	·05	·59	·65	1·29	..	·99	·09	..	1·08	1·35	·74
Horton	·01	..	..	·01	..	·52	·13	·71	1·36	1·31	·87
West Lulworth	·17	·50	·50	1·17	..	·79	..	..	·79	1·18	1·12
Melbury Sampford ..	·04	·46	·17	·67	·01	1·11	·01	..	1·12	1·52	1·08
Parkstone	·04	..	·23	·32	..	2·06	·25	..	2·31	1·35	·91
Portisham	·11	·61	·31	1·03	..	·77	·09	..	·86	1·10	1·19
Portland Bill	·27	·17	·80	1·24	..	·94	·20	..	1·14	1·12	·77
" Chesil	·19	·52	·29	1·00	..	·85	..	..	·85	·94	1·00
Shaftesbury	·02	1·90	·02	1·94	1·24	·70	·16	..	·86	1·54	1·00
Sherborne	·01	·15	·23	·39	..	1·02	·02	·18	1·22	1·47	·80
Sturminster Marshall ..	·01	..	·57	·58	..	·69	·09	..	·78	1·50	1·05
Sturminster Newton ..	·02	·07	·46	·55	..	·50	·33	..	·83	1·46	·69
Swanage	·10	..	·31	·41	..	1·43	·75	..	2·18	·94	1·05
" Victoria Hotel	..	..	·31	·31	..	2·21	·02	..	2·23	·08	1·06
Verwood	·03	..	·07	·10	..	·96	..	..	·96	1·34	·86
Wareham	·05	..	2·65	2·70	..	·86	..	..	·86	1·19	·07
" Binnegar	·04	2·85	1·11	4·00	..	·64	·17	..	·81	1·31	1·17
Weymouth	·15	·43	·26	·84	..	·62	·01	..	·63	·97	1·00
Wimborne, Codford ..	..	..	·39	·39	..	·80	·10	·01	·91	1·43	1·09
" Rowlands .. ..	..	..	·39	·39	..	·56	·41	..	·97	1·80	1·35
Winterbourne Herrington	·11	·96	·60	1·67	..	·68	..	..	·68	1·35	1·25
" Houghton .. ..	..	·21	·50	·71	..	·69	..	..	·69	1·12	1·17
" Steepleton	·09	1·39	·23	1·71	..	·80	·03	..	·83	1·44	1·50
" W., Whatcombe	·01	..	·53	·54	..	·45	·15	·78	1·38	1·51	1·04
Wyke Regis	·17	·54	·33	1·04	..	·72	..	..	·72	·94	1·02
Rousdon	·04	·34	·12	·50	..	1·02	..	·03	1·05	1·02	1·19
Larmer .. ..	..	·02	·08	·10	..	·52	·15	·02	·69	1·42	1·02
Rushmore .. ..	..	·06	..	·06	..	·53	·18	·08	·79	1·30	1·00



A List of Plants found in the
Parishes of S. Minver, Cornwall, and
Bradford Abbas, Dorset.

By R. DARELL S. STEPHENS, F.L.S., F.G.S., F.Z.S.,
ETC., ETC.



THE only thing the writer claims is that the plants mentioned do occur in the two parishes named, as, having known both for many years, he knows all the boundaries. The Bradford Abbas plants were all seen by the late Professor Buckman. Nearly all the S. Minver ones have been at Whatcombe, and were gone through by Mr. J. C. Mansel-Pleydell, to whom many thanks are due from the writer. The S. Minver list is not as complete as the Bradford Abbas one. The Bradford Abbas plants were gathered in 1875-6; and the S. Minver ones, with very few exceptions, in 1877.

NOTE BY J. C. MANSEL-PLEYDELL, D.L.,
F.G.S., F.L.S.

The plants enumerated in the following list were found growing wild by Mr. Darell Stephens at Bradford Abbas, in

Dorsetshire, and at S. Minver, in Cornwall. They are widely separated from each other, and differ essentially in their geological features. Bradford is on the Inferior Oolite and Fuller's Earth, S. Minver is on the Devonian, with eruptive volcanic rocks interspersed. It differs, too, in having a seaboard and some heath land, also in a climate favourable to such southern types as *Diplotaxis muralis*, *Fumaria pallidiflora*, *Medicago denticulata*, and *Lotus angustissimus*, which, although not maritime on the Continent, require a mean temperature such as that which exists only on the southern coasts of England. The influence which proximity to the sea exercises in reducing the difference between summer and winter is very remarkable. In Edinburgh it is 19·1, in York 23·4, in Leeds 20·8, in Greenwich 22·3, Exeter 19·3. Mr. H. C. Watson gives the mean annual temperature of the coast of Cornwall to be 52, that of the south coast of Devonshire 51½, and of Dorsetshire 51. The geology of a district influences its flora equally with the climate, soils differ in their power of retaining or absorbing moisture, calcareous rocks do not disintegrate freely, and resist the abrading atmospheric influences; the most absorbent of all are those in which the argillaceous element predominates. If we take a quantity of dry sand, and pour water upon it, we shall find that it will not absorb more than a quarter of its own weight of the water, but vegetable loam will absorb 40 or 50 per cent. of its own weight, and dry argillaceous clay will absorb as much as 60 or 70 per cent. Argillaceous soils are comparatively humid and cold, and in dry weather become hardened and form a crust on the surface. Arenaceous soils, on the other hand, are often light and sterile, and in dry weather become parched. Under equal climates and at equal elevations the argillaceous soil has a more humid and boreal vegetation.

Number of plants common to both districts	-	284
" " found at S. Minver only	-	138
Maritime plants, S. Minver	-	32
" " found at Bradford Abbas only	-	144

S. MINVER.

LIST I.—PLANTS FOUND AT S. MINVER, WHICH ARE ABSENT
AT BRADFORD ABBAS.

Ranunculus Lenormandi.	Trifolium scabrum.
„ Flammula.	„ striatum.
„ sardous.	Lotus angustissimus, var.
„ parviflorus.	diffusive.
Berberis vulgaris.	Lathyrus tuberosus.
Papaver dubium.	Prunus insititia.
„ hybridum.	„ avium.
Chelidonium majus.	Rosa spinosissima.
Fumaria pallidiflora.	Alchemilla arvensis.
Lepidium Smithii.	Crataegus Monogyna.
Diploaxis muralis.	Pyrus torminalis.
Reseda Luteola.	Ribes nigrum.
Viola sylvatica, <i>Fries.</i> , V.	„ Grossularia.
Riviniana, <i>Reich.</i>	Sedum anglicum.
Cerastium glomeratum.	Hydrocotyle vulgaris.
„ tetrandrum.	Smyrnium Olusatrum.
Stellaria uliginosa.	Apium graveolens.
Arenaria verna.	Aegopodium Podagraria.
Honkenya peploides.	Carum Petroselinum.
Sagina ciliata.	„ segetum.
„ subulata.	Anthriscus vulgaris.
Linum angustifolium.	Sambucus Ebulus.
Hypericum Androsænum.	Rubia peregrina.
Anthyllis Vulneraria.	Galium saxatile.
Anthyllis Vulneraria, var. β .	Centranthus ruber.
Dellenii.	Serratula tinctoria.
Medicago maculata.	Silybum Marianum.
„ denticulata.	Carlina vulgaris.
Melilotus officinalis, <i>Desr.</i> , M.	Centaurea nigra, var. decipens, <i>Thuill.</i>
arvensis, <i>Wallr.</i>	„ Cyanus.
Trifolium medium.	Artemisia Absinthium.
„ strictum.	

- Filago minima
 Petasites fragrans.
 Tanacetum vulgare.
 Anthemis nobilis.
 Achillæa Ptarmica.
 Picris echioides.
 Leontodon hirtus, Thrincia
 hirta.
 Erica tetralix.
 „ cinerea.
 Calluna erica.
 Gentiana Amarella.
 Menyanthes trifoliata.
 Cuscuta Epithymum.
 Hyoscyamus niger.
 Solanum nigrum, var. *β. muricatum*.
 Veronica serpyllifolia.
 „ scutellata.
 „ montana.
 „ officinalis.
 Bartsia viscosa.
 Euphrasia officinalis.
 Pedicularis sylvatica.
 „ palustris.
 Mentha rotundifolia.
 Thymus Chamaedrys.
 Stachys Betonica.
 Nepeta Cataria.
 Marrubium vulgare.
 Scutellaria minor.
 Myosotis repens.
 Anchusa sempervirens.
 Cynoglossum officinale.
 Echium vulgare.
 Anagallis tenella.
 Plantago Coronopus.
 Atriplex hastata.
 Rumex Hydrolapathum.
 „ sanguineus.
 „ pulcher.
 Mercurialis perennis.
 Spiranthes autumnalis.
 Orchis mascula.
 „ Morio.
 „ incarnata.
 Narcissus Pseudo-narcissus.
 Scilla Verna.
 „ Autumnalis.
 Alisma ranunculoides.
 Potamogeton polygonifolius.
 Juncus effusus.
 „ supinus.
 „ bufonius, var. fasciculatus, *Koch.*
 Cyperus longus.
 Scirpus fluitans.
 „ Savii.
 Eriophorum angustifolium,
 Roth., *E. polystachium*.
 Carex pulicaris.
 „ disticha, *Huds.*, *C. intermedia*, *Good.*
 „ divulsa.
 „ echinata, *Murr.*, *C. stellulata*.
 „ fulva, *Good*, *C. speirostachya*, *Sm.*
 „ flava.
 „ „ var. minor.
 Alopecurus geniculatus.
 Agrostis canina.

Agrostis alba.	Bromus commutatus.
Koeleria cristata.	Lomaria spicant.
Poa compressa.	Asplenium Ruta-muraria.
„ nemoralis.	„ Trichomanes.
Glyceria fluitans.	Ceterach officinarum.
Festuca sciuroides, <i>Roth.</i> , F.	Polypodium Dryopteris.
bromoides, <i>Sm.</i>	Osmunda regalis.
„ elatior.	

S. MINVER.

LIST II.—MARITIME PLANTS FOUND AT S. MINVER WHICH
ARE ABSENT FROM BRADFORD ABBAS.

Cakile maritima.	Beta maritima.
Cochlearia officinalis.	Suaeda maritima.
„ danica.	Salicornia herbacea.
„ anglica.	Euphorbia portlandica.
Silene maritima.	Triglochin maritimum.
Lepigonum salinum.	Juncus maritimus.
„ marginatum.	„ Gerardi.
„ rupestre.	Scirpus maritimus.
Tamarix gallica.	Carex arenaria.
Eryngium maritimum.	Gastroidium lendigerum.
Crithmum maritimum.	Phleum arenarium.
Inula crithmoides.	Ammophila arundinacea,
Calystegia Soldanella.	<i>Host.</i> , Psamma arenaria,
Glaux maritima.	<i>Roem.</i> and <i>Schultz.</i>
Armeria maritima.	Glyceria maritima.
Plantago maritima.	Elymus arenarius.
Salsola Kali.	Asplenium marinum.

BRADFORD ABBAS.

LIST III.—PLANTS FOUND AT BRADFORD ABBAS WHICH ARE
ABSENT AT S. MINVER.

Thalictrum flavum.	Ranunculus arvensis.
Ranunculus peltatus, var. R.	Aconitum Napellus.
penicillatus.	Nuphar lutea.

- Thlaspi arvense.*
Erophila præcox, *D.C.*, *E.*
brachycarpa, *Jord.*
Cardamine flexuosa.
Arabis sagittata.
Nasturtium palustre. *D.C.*,
N. Terrestre, *R. Br.*
Sisymbrium Alliaria.
Brassica Rapa.
Raphanus Raphanistrum.
Viola hirta.
„ canina, *Linn.*, *V. flavi-*
cornis.
„ tricolor.
Silene anglica.
Cerastium triviale.
„ semidecandrum.
Arenaria trinervia.
Linum usitatissimum.
Malva rotundifolia.
Hypericum quadrangulum.
„ hirsutum.
Acer campestre.
Geranium pusillum.
„ lucidum.
Cytisus scoparius.
Medicago falcata.
Melilotus altissima, *Thuill.*,
M. officinalis,
Willd.
„ alba, *Desr.*, *M. vul-*
garis, *Willd.*
Onobrychis sativa.
Vicia angustifolia, var. *sege-*
talis.
„ lutea.
- Vicia sepium.*
„ gracilis.
Lathyrus Aphaca.
„ sylvestris.
Rubus Lindleianus.
Rosa micrantha.
„ dumalis.
„ verticillacantha.
„ systyla, var. *ß. stylosa*,
Desv.
Ribes rubrum.
Epilobium angustifolium.
„ montanum.
Scleranthus annuus.
Sison Amomum.
Sium angustifolium.
Anthriscus sylvestris.
Cenanthe pimpinelloides.
„ Phellandrium.
Æthusa Cynapium.
Silaus pratensis.
Cornus sanguinea.
Adoxa Moschatellina.
Viburnum Opulus.
„ Lantana.
Galium uliginosum.
Valeriana officinalis, var.
sambucifolia,
auct. angl.
„ dioica.
Cnicus acaulis.
„ palustris.
Petasites vulgaris.
Pulicaria dysenterica.
Chrysanthemum Parthenium,
Pers., *Matricaria Parthenium.*

<i>Anthemis arvensis.</i>	<i>Populus tremula</i>
<i>Picris hieracioides.</i>	„ <i>niger.</i>
<i>Crepis taraxacifolia.</i>	<i>Salix alba.</i>
<i>Hieracium umbellatum.</i>	„ <i>triandra</i> , var. <i>amygdalina.</i>
<i>Leontodon autumnalis.</i>	„ <i>viminalis.</i>
<i>Veronica polita.</i>	„ <i>Smithiana.</i>
„ <i>agrestis.</i>	„ <i>cinerea.</i>
<i>Scrophularia aquatica.</i>	<i>Orchis pyramidalis.</i>
„ <i>nodosa.</i>	„ <i>maculata.</i>
<i>Orobanche minor.</i>	<i>Allium ursinum.</i>
<i>Mentha sylvestris.</i>	<i>Anacharis Alsinastrum.</i>
„ <i>viridis.</i>	<i>Alisma Plantago.</i>
„ <i>sativa.</i>	<i>Sagittaria sagittifolia.</i>
„ <i>arvensis.</i>	<i>Potamogeton pectinatus.</i>
<i>Calamintha Clinopodium.</i>	„ <i>crispus.</i>
<i>Lamium amplexicaule.</i>	„ <i>perfoliatus.</i>
<i>Galeopsis Ladanum.</i>	„ <i>lucens.</i>
<i>Stachys ambigua</i> , <i>Sm.</i> , <i>S.</i>	<i>Juncus obtusiflorus.</i>
„ <i>sylvatici-palustris.</i>	<i>Luzula pilosa.</i>
<i>Lithospermum arvense.</i>	<i>Scirpus setaceus.</i>
<i>Symphytum officinale.</i>	„ <i>lacustris.</i>
<i>Lysimachia vulgaris.</i>	„ <i>sylvaticus.</i>
„ <i>Nummularia.</i>	<i>Carex acuta.</i>
<i>Plantago media.</i>	„ <i>distans.</i>
<i>Chenopodium polyspermum.</i>	„ <i>paludosa.</i>
„ <i>rubrum.</i>	<i>Phleum pratense.</i>
„ <i>album.</i>	<i>Agrostis alba</i> , var. <i>stolonifera.</i>
<i>Atriplex littoralis.</i>	<i>Phragmites communis.</i>
<i>Polygonum lapathifolium.</i>	<i>Avena fatua.</i>
„ <i>Convolvulus.</i>	„ <i>pubescens.</i>
<i>Rumex acutus</i> , <i>R. pratensis.</i>	<i>Arrhenatherum avenaceum.</i>
<i>Daphne Laureola.</i>	<i>Holcus mollis.</i>
<i>Quercus Robur</i> , var. <i>pedunculata.</i>	<i>Briza media.</i>
<i>Carpinus Betulus.</i>	<i>Glyceria aquatica.</i>
<i>Populus alba.</i>	<i>Festuca myurus.</i>

<i>Festuca rubra</i> .	<i>Asplenium Adiantum-nigrum</i> .
<i>Bromus asper</i> .	<i>Polystichum angulare</i> .
„ <i>racemosus</i> .	<i>Equisetum arvense</i> .
<i>Agropyron caninum</i> .	„ <i>palustre</i> .
<i>Hordeum pratense</i> .	

LIST IV.—PLANTS WHICH OCCUR IN BOTH THE PARISHES OF
S. MINVER AND BRADFORD ABBAS.

<i>Clematis Vitalba</i> .	<i>Saponaria officinalis</i> .
<i>Ranunculus sceleratus</i> .	<i>Silene Cucubulus</i> .
„ <i>acris</i> .	<i>Lychnis Flos-Cuculi</i> .
„ <i>repens</i> .	„ <i>Diurna</i> .
„ <i>bulbosus</i> .	„ <i>vespertina</i> .
„ <i>Ficaria</i> .	„ <i>Githago</i> .
<i>Caltha palustris</i> .	<i>Stellaria aquatica</i> .
<i>Papaver Rhæas</i> .	„ <i>media</i> .
„ <i>Argemone</i> .	„ <i>Holostea</i> .
<i>Fumaria officinalis</i> .	„ <i>graminea</i> .
<i>Senebiera coronopus</i> .	<i>Arenaria serpyllifolia</i> .
<i>Capsella Bursa pastoris</i> .	„ <i>serpyllifolia</i> , var.
<i>Erophila vulgaris</i> .	<i>leptoclados</i> .
<i>Cardamine pratensis</i> .	<i>Sagina apetala</i> .
„ <i>hirsuta</i> .	„ <i>procumbens</i> .
<i>Barbarea vulgaris</i> .	<i>Spergula arvensis</i> .
<i>Nasturtium officinale</i> , var. <i>N.</i>	<i>Linum catharticum</i> .
<i>siifolium</i> .	<i>Malva moschata</i> .
<i>Sisymbrium officinale</i> .	„ <i>sylvestris</i> .
„ <i>Thaliana</i> .	<i>Hypericum perforatum</i> .
<i>Brassica Sinapis</i> , <i>Vis.</i> , <i>Sin-</i>	„ <i>humifusum</i> .
<i>apis arvensis</i> , <i>Linn.</i>	„ <i>pulchrum</i> .
„ <i>nigra</i> .	<i>Acer Pseudo-platanus</i> .
„ <i>alba</i> .	<i>Tilia intermedia</i> .
<i>Viola odorata</i> .	<i>Geranium colombinum</i> .
„ <i>tricolor</i> , var. <i>arvensis</i> .	„ <i>molle</i> .
<i>Polygala vulgaris</i> .	„ <i>dissectum</i> .

Geranium Robertianum.	Cratægus Oxyacantha.
Erodium cicutarium.	Pyrus Malus.
Euonymus europæus.	Saxifraga tridactylites.
Ulex europæus.	Sedum acre.
Ononis arvensis.	Cotyledon Umbilicus.
Medicago lupulina.	Lythrum Salicaria.
Trifolium subterraneum.	Epilobium hirsutum.
„ pratense.	„ parviflorum.
„ repens.	„ lanceolatum.
„ arvense.	„ tetragonum.
„ hybridum.	Circæa lutetiana.
„ fragiferum,	Bryonia dioica.
„ procumbens.	Conium maculatum.
„ dubium.	Apium nodiflorum.
„ filiforme.	Conopodium denudatum.
Lotus corniculatus.	Pimpinella Saxifraga.
„ uliginosus, <i>Sibth.</i> , L.	Chærophylum temulum.
Major, <i>Scop.</i>	Scandix Pecten-Veneris.
Ornithopus perpusillus.	Angelica sylvestris.
Vicia Cracca.	Enanthe crocata.
„ sativa.	Heracleum Sphondylium.
„ hirsuta.	Daucus Carota.
„ tetrasperma.	Caucalis Anthriscus, <i>Gmel.</i> ,
Lathyrus pratensis.	Torilis Anthriscus, <i>Gaert.</i>
Prunus spinosa.	„ arvensis, <i>Huds.</i> ,
Spiræa Ulmaria.	Torilis infesta,
Geum urbanum.	<i>Spreng.</i>
Potentilla Anserina.	„ nodosa, <i>Scop.</i> ,
„ reptans.	Torilis nodosa,
„ Tormentilla.	<i>Gaert.</i>
„ Fragariastrum.	
Fragaria vesca.	Hedera Helix.
Rubus cæsius.	Sambucus nigra.
Rosa tomentosa.	Lonicera Periclymenum.
Agrimonia Eupatoria.	Galium verum.
Poterium Sanguisorba.	Galium Mollugo.

<i>Galium palustre.</i>	<i>Anthemis Cotula.</i>
„ <i>Aparine.</i>	<i>Achillæa Millefolium.</i>
<i>Sherardia arvensis.</i>	<i>Cichorium Intybus.</i>
<i>Valeriana officinalis.</i>	<i>Lapsana communis.</i>
<i>Valerianella olitoria.</i>	<i>Crepis virens.</i>
„ <i>Auricula.</i>	<i>Hieracium Pilosella.</i>
„ <i>dentata.</i>	<i>Hypochæris radicata.</i>
<i>Dipsacus sylvestris.</i>	<i>Taraxacum officinale.</i>
<i>Scabiosa Succisa.</i>	<i>Sonchus arvensis.</i>
„ <i>arvensis, Knautia</i>	„ <i>oleraceus.</i>
<i>arvensis.</i>	„ <i>asper.</i>
<i>Arctium majus.</i>	<i>Tragopogon pratensis.</i>
<i>Carduus nutans.</i>	<i>Specularia hybrida.</i>
„ <i>crispus, C. acan-</i>	<i>Ligustrum vulgare.</i>
<i>thoides.</i>	<i>Fraxinus excelsior.</i>
„ <i>pycncephalus.</i>	<i>Vinca major.</i>
<i>Cnicus arvensis.</i>	<i>Erythræa Centaurium.</i>
„ <i>lanceolatus.</i>	<i>Chlora perfoliata.</i>
<i>Centaurea nigra.</i>	<i>Calystegia Sepium.</i>
„ <i>Scabiosa.</i>	<i>Convolvulus arvensis.</i>
<i>Eupatorium cannabinum.</i>	<i>Cuscuta Trifolii.</i>
<i>Artemisia vulgaris.</i>	<i>Solanum Dulcamara.</i>
<i>Gnaphalium uliginosum.</i>	<i>Verbascum Thapsus.</i>
<i>Filago germanica.</i>	<i>Veronica arvensis.</i>
<i>Tussilago Farfara.</i>	„ <i>chamædrys.</i>
<i>Erigeron acre.</i>	„ <i>Anagallis.</i>
<i>Senecio vulgaris.</i>	„ <i>Beccabunga.</i>
„ <i>sylvaticus.</i>	„ <i>hederæfolia.</i>
„ <i>Jacobæa.</i>	„ <i>persica.</i>
„ <i>aquaticus.</i>	<i>Bartsia Odontites.</i>
<i>Inula Conyza.</i>	<i>Rhinanthus Crista-galli.</i>
<i>Bellis perennis.</i>	<i>Digitalis purpurea.</i>
<i>Chrysanthemum segetum.</i>	<i>Linaria Cymbalaria.</i>
„ <i>Leucanthemum.</i>	„ <i>spuria.</i>
<i>Matricaria Chamomilla.</i>	„ <i>Elatine.</i>
	„ <i>vulgaris.</i>

Linaria viscosa.	Polygonum Hydropiper.
Verbena officinalis.	„ aviculare.
Salvia Verbenaca.	Rumex crispus.
Lycopus europæus.	„ obtusifolius.
Mentha Piperita.	„ conglomeratus.
Thymus Serpyllum.	„ Acetosa.
Origanum vulgare.	„ Acetosella.
Ajuga reptans.	Euphorbia Helioscopia.
Ballota nigra.	„ exigua.
Teucrium Scorodonia.	„ Peplus.
Lamium album.	Urtica urens.
„ purpureum.	„ dioica.
Galeopsis Tetrahit.	Parietaria officinalis.
Stachys palustris.	Humulus Lupulus.
„ sylvatica.	Ulmus montana, <i>With.</i> , U.
„ arvensis.	glabra, <i>Mill.</i>
Nepeta Glechoma.	Corylus Avellana.
Prunella vulgaris.	Alnus glutinosa.
Scutellaria galericulata.	Salix Caprea.
Myosotis palustris.	Listera ovata.
„ cæspitosa.	Iris foetidissima.
„ arvensis.	„ Pseudacorus.
„ collina.	Allium vineale.
„ versicolor.	Scilla nutans.
Lithospermum officinale.	Tamus communis.
Lycopsis arvensis.	Triglochin palustre.
Primula vulgaris.	Arum maculatum.
„ veris.	Sparganium ramosum.
Anagallis arvensis.	Juncus conglomeratus.
„ „ var. caerulea.	„ glaucus.
	„ diffusus.
Samolus Valerandi.	„ acutiflorus.
Plantago major.	„ lamprocarpus.
„ lanceolata	„ bufonius.
Polygonum amphibium.	Luzula campestris.
„ Persicaria.	Carex vulpina.

<i>Carex muricata.</i>	<i>Dactylis glomerata.</i>
„ <i>remota.</i>	<i>Poa annua.</i>
„ <i>glauca.</i>	„ <i>pratensis.</i>
„ <i>binervis.</i>	„ <i>trivialis.</i>
„ <i>hirta.</i>	<i>Festuca rigida.</i>
„ <i>riparia.</i>	„ <i>ovina.</i>
<i>Anthoxanthum odoratum.</i>	<i>Bromus sterilis.</i>
<i>Alopecurus pratensis.</i>	„ <i>mollis.</i>
„ <i>agrestis.</i>	<i>Brachypodium sylvaticum.</i>
<i>Aira caryophyllea.</i>	<i>Lolium perenne.</i>
<i>Deschampsia cæspitosa, Aira</i>	<i>Agropyron repens.</i>
<i>cæspitosa.</i>	<i>Pteris aquilina.</i>
<i>Trisetum flavescens.</i>	<i>Scolopendrium vulgare.</i>
<i>Holcus lanatus.</i>	<i>Polypodium vulgare.</i>
<i>Cynosurus cristatus,</i>	<i>Ophioglossum vulgatum.</i>

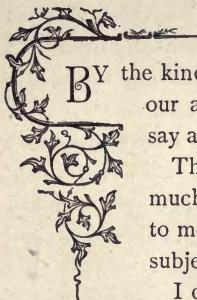




On Horseshoes.

By Captain ARTHUR RICKARDS.

(Read February 26th, 1900.)



BY the kindness of the President, and by the courtesy of our able Secretary, Mr. Richardson, I am able to say a few words on the subject of horseshoes.

This is a matter in which in time past I have much interested myself, and it is a great pleasure to me to have the opportunity of speaking on the subject to such an audience as that now around me.

I desire in commencement to say that I in no way wish to unsay anything that anyone else amongst us may have said; nor to raise any uncomfortable feeling or animosity towards myself or any other.

At an early meeting in last year, I think on the 9th March, my attention was much arrested by an exhibit then placed before us, and which it was suggested we should accept as a "Roman horseshoe," and I am quite sure, from the able and lucid manner in which it was introduced to us, that the gentleman who made the introduction quite honestly believed that it might be so. It did not, however, strike me quite in the same manner, but as I had only been a member of the Dorset Field Club for from five minutes previously, I did not feel that I had any right to put

forward an ill-mannered objection, so I held my peace, at all events for the moment ; but I much fear that at luncheon on the same day I must have spoken somewhat unadvisedly, though certainly unintentionally so, on the matter ; I imagine I must have said that iron (of which I believe the shoe was made) was not known to the Romans ; that had it been made of bronze it would have better supported the idea of being Roman, and I think I remember quoting Dr. Smiles as saying in his " Lives of the Engineers," that on their landing on this island the Romans found themselves *for the first time* in the presence of iron, which had been welded into scythes and fixed on the wheels of the chariots that were driven by the *Britons* through their ranks.

I mention this because a gentleman with a much-honoured name most kindly wrote a letter to inform me of long previous iron remains now being in our museums ; but these remains were not of Rome, but of Egypt, and undoubtedly iron was known and was extensively used by the Egyptians, by the people of Nineveh, by the empire of Chaldæa, &c., and these are *far*, *far* earlier days than those of Rome ; but they were not days, as now, of speedy inter-communication between nations ; not days of telegraphy, daily newspapers, and special correspondents. The stone ages, the bronze age, and the iron age have existed and succeeded one another in every country throughout the world, but at vastly different periods, and when the Egyptians and people of Chaldæa were well on in the latter, the iron age, the inhabitants of Italy would have been hacking their tyro-days through Nature with chipped flints and bone axes, and I can see no reason to dispute Dr. Smiles's statement already quoted as to their later arrival at the iron age, which succeeds the bronze age.

I know I shall be told that much turns upon the manner in which I translate the Latin word "ferrum." I am not a dictionary-maker, but I resent the idea that it means only "iron." In the year succeeding the banishing of King Tarquinius Superbus the Etruscans fell upon Rome, and the city surrendered itself to her Etruscan conqueror. "His sovereignty was fully acknowledged, the Romans gave up their arms, and

recovered their city and territory on condition of renouncing the use of 'iron' except for implements of agriculture." These words I quote from Arnold's History of Rome, and Pliny's words describing this agreement are "— invenimus ne ferro nisi in agriculturâ uterentur," and thus, since there may be some among my audience who, like myself, have not thoroughly perfected their studies in the Latin tongue, I will translate, as "we do not find iron used except in husbandry," but I dispute that the word "ferrum" means "iron." As we have translated it it will, as I think, mean the *metal* with which the Romans made their arms, and which arms they *now* gave up, and this was the time, or just after that, of Tarquinius Superbus, and surely no one would assert that in those days the Romans made their arms of iron, when in the time of Julius Cæsar they made their swords, and even their razors, of bronze.

I know that it was for long contended, but without any evidence, that the Romans coined money in iron; and I recently wrote to Messrs. Lincoln (the well-known Numismatists) asking of this, and their reply is (as attached)—"We hardly like to be quite certain that there were no Roman coins struck in iron, but we never saw any, and cannot recall to mind any records of the existence of such." Dr. Smith writes—"Not a specimen of iron money is now extant, a fact easily accounted for by the liability of the metal to rust."

I did not remark any deterioration of the shoe from the action of rust. If it so completely destroys a coin of Roman time it would, I think, hardly have so ignored the Roman shoe!

And saying this, the high value attached by the Romans to their metal bronze, I will ask you, sir, to allow me to pass round these coins; this, the larger one, is the old (the original sized) Roman "As," the equivalent of our shilling; this, marked with an "S," the semi-as, equivalent to our sixpence; and this, the "Tirrens," marked with four balls, the equivalent of our three-pence. These are all of them of the original size; but these which I now put forward are of the same value as the largest, the full "As," but so reduced in size during the Punic Wars, on

account of the great value of the metal and the demand for it to supply their war weapons. And, speaking of war weapons, I recently exhibited this Roman sword; but time did not allow me any opportunity to introduce it; and I saw in the local paper mention of it and the remark that it could only have been a dagger on account of its small size. Dr. Smith, in his Dictionary of Greek and Roman Antiquities, gives an illustration of the Greek hoplite and another of the Roman soldier, and remarks—"On comparing them we perceive that the several parts of the armour correspond, excepting only that the Roman soldier wears a *dagger* on his right side instead of a sword on his left," and this sword that I now show is the *dagger* that Dr. Smith names, and was the *only* sword with which the rank and file of the Roman legions were armed, and with which they won their Empire of the world.

This much I have said on the subject of the metal. I re-assert what I have already said, that the Romans did not know of iron previously to their invasion of this island. Let us turn now to the shoe itself.

I am aware that in the admirably ordered County of Dorset Museum we are shown some "Roman horseshoes;" but are they horses' shoes? Are they Roman? How are they *known* to be so? Where were they found? and of what metal are they fabricated?

I do not *know* of any *Roman* horseshoes in the British Museum; I do not say there are none there, but that I do not *know* of them.

I know many Roman equestrian statues, but none that I *know* (I speak of *real Roman* statues) having shoes on the horses' feet. I know of no passage in any Roman or Greek poet, or other writer, speaking of "horseshoes." Surely had they existed such writers as Homer, Menander, Plato, Virgil, Horace, Ovid, and others, who searched every corner for their poetical similes, would have made some mention of them!

Homer, again and again, speaks of the "solid *hoofed* horses." I remember, by the way, that I always noticed this was mentioned

in the feminine tense ; possibly this may have been dictated by "poetical license." This we would of course all of us admire.

Xenophon, who led the retreat of the ten thousand Greeks (and what a march and over what a country was this !); and who wrote as a first authority on veterinary matters, teaches thus :—

"The right way in which to treat the horse's foot and to toughen it, is to let him stand at all time on the hardest stone, and, Nature then adapting herself to circumstances, will grow the hardest horn."

I always learned at school that the shoeing of horses arose when the men-at-arms of the middle ages were clad with such heavy armour that they had to be mounted on Flemish mares. These were *the* most chosen war horses of those days ; immensely powerful of build, but not particularly fast movers, nor of the hardest pattern, I imagine, of bone or horn.

Haydn, in his Dictionary of Dates, tells us that the shoeing of horses was introduced by the Normans, and this seems, I think, very likely, and under their guidance the shoeing, no doubt, thrived.

Now dropping for the moment all polite fencing of words—what is the question before us ?

A horseshoe has been placed before us, and the suggestion offered that we should accept it as being of Roman manufacture.

I find no fault with the matter so far, and I desire to bear testimony to the particularly nice and delicate way in which the horseshoe was introduced to us ; but I *do* object to its pretensions *most entirely*.

I exclaim "You are an impostor ; horse-shoeing was only introduced into this country by the Normans, and you wish us to acknowledge you as a veteran ancestor of some six hundred years previously !"

I know that I am awakening embers of fire upon my head, and I know well the admirably obstinate character of the ordinary antiquarian. I know that you can only with difficulty convince him that his pre-conceived opinion *can* be wrong ; and I can instance this from my own experience in this case. I heard of

a well-known and very able antiquarian who had in his possession an old horseshoe, and from whom, possibly, I should get some information. I visited him and was shown the shoe, along with numerous other antiquities. I asked him what date he would assign to it? He replied, "Oh, two thousand years at least." I somewhat hesitated to accept this, and asked why he thought it quite so old? His answer was that he had found it with these other articles, in a formation of coral rag; and he laid before me some excellent examples of the Palæolithic stone age (though amongst them was one that I certainly thought was rather of the Neolithic). How he imagined that the man armed only with chipped flints could have produced the iron shoe I did not care nor think it worth while to enquire, and I mentally remarked, "He's an antiquarian, he's got this shoe, he has said it is 2,000 years old, and so I feel it has to be up to the time of his decease."

Nor do I think the very learned Curator of the Dorset County Museum will easily renounce his "Roman horseshoes."

Saddles were not used or known in England until about the year 600—some 200 and odd years after the Romans had withdrawn—and no Roman ever wore the heavy armour of the "man-at-arms," and the Roman was, I like to think, far too practical a man to have so thoroughly impaired that splendid animal, the horse, with shoes, as we more moderns have done.

No; I fully hope this paper may give rise to discussion; and I hope the friends of the "Roman horseshoe" will not spare me in any way. I claim a share of the obstinacy I so readily accord the antiquarian, and I claim the date of the Norman invasion as the earliest I will allow for horse-shoeing in this country. I hold the shoeing of horses to be the greatest crime man has ever perpetrated against Nature, and I say "Let us lay that crime against the right door."





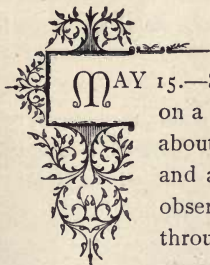
Journal of an
Excursion to Eastbury and Bristol, &c.,
in May and June, 1767.

By Sir JOSEPH BANKS, Bart.

WITH NOTES BY S. G. PERCEVAL, ESQ., OF HENBURY AND
BRISTOL.

THE PORTION RELATING TO DORSET IS HERE PRINTED
BY HIS KIND PERMISSION.

(Read by the President, March 9th, 1899.)



MAY 15.—Set out this day for Eastbury in Dorsetshire, on a visit to my Aunt Mrs Grenville. It is situate about 100 miles from London. As I traveld post and arrivd there the same night I made but few observations upon the Road. I saw however through the Windows of my Chaise, Myrica Gale growing in Plenty upon a Bog near the 21 mile Stone on Bagshot heath.

16.—This morn hard rain. Amusd myself by looking over the house. Found it exceeding large and possibly one of the

heaviest piles of stone Sr J^{no} Vanbrugh ever erected. The inside is fitted up magnificently with a great deal of gilding and Ceilings painted after the antique. Upon the whole the inside is much more convenient as well as more elegant than the outside gives any hopes of. The Countrey about it is Pleasant, consisting chiefly of open Downs and sheep walks, except towards the west and N.W., where the town and enclosures of Tarent Gunvil and the Woods of Cranbourn Chace give an agreeable variety, contrasting with the open countrey on the other sides. At twelve Cleard up, went in Search of a Barrow which the Bishop of Carlisle had informd me was somewhere in this neighbourhood. Found it at the N. Corner of the Park, its construction very singular, being a Bank of about 60 paces in Lengh and 15 broad, N.E. b N. [N.E. by N.] and S.W. b W. A small part of one end was within the pail that had been opend, and a grotto made in the hollow. We were told that when it was opend a number of Bones were found. I was exceedingly desirous of opening the other end, which was in a sheep walk without the pails, but upon inquiring whose property it was, had the mortification to be told that it belonged to an estate now upon sale, the Owner of which was in London; was therefore obligd to give over all thoughts of it. Went to Look at the Village. Found nothing in it remarkable but the name Tarent Gunvill, the name of Tarent being affixd to several little villages which stand on a little Brook or torrent.

17.—This morn also Rainy and disagreeable : venturd out towards Chittle * in which Parish is situate a tolerable house, the property of a Mr. Chafin,† whose father was sometime Member for the County: was agreeably surprizd by finding within two

* CHITTLE, spelt Chettle.—A village about six miles N.E. of Blandford.

† Mr. CHAFIN.—George Chafin, Esq., of Chettle, eldest son of George Chafin, who died in 1766. The son died in 1776, aged 59.

feilds of the house, another Barrow * of exactly the same construction as that found yesterday, only Larger, it being 100 paces in length: its bearings also were different, it being pretty near East and West. It had visibly been opened in two places, which made me curious to enquire what had been found. Upon my asking, the Young Mr Chafin inform'd me that his father had opened it about forty years ago. One opening at the Eastern extremity he carried down a little way below the surface of the real Ground, when he found many Bones, Brass heads of Spears and some Coin, all which were sent up to L^d Pembroke. The other, situate about one third of the whole Length of the Barrow, more to the westward, was never carried deep enough, so nothing was discovered in it. On the side of the Barrow found Thesium linophyllum and Othonna integrifolia [Senecio campestris].

18.—This morn exceeding fine; went with the family to see Mr Portman's, situate upon the River Stour, just at the entrance of the town of Blanford. It has from the Road, all the appearance of a very pretty Place, but upon our finding Mr Portman at home, for Reasons of Ceremony, we were not permitted to see it. In the way, however, discovered a third Barrow like the other two, which certainly is what the Bishop meant, being situate upon the Downs. My time however is now so short, that it is impossible to get men together to open it.

* ANOTHER BARROW.—The Barrows which Banks saw this day and the day before, are thus described in Hutchins' *History of Dorsetshire*, vol. iii., 2nd edition, 1813, p. 168.

"There are two Barrows about $\frac{1}{2}$ mile distant from each other, one of them 100 yards in length, the other about 60. The latter stands partly in the parish of Chettle, and partly in that of Tarent Gunville: the boundary of the two parishes passes lengthways over the summit of the Barrow, and divides it in equal portions, one the property of the Marquis of Buckingham, the other of Mr. Chafin. One end of the Marquis's part was formerly taken into Lord Melcombe's park, and was excavated to make a grotto: many human bones were dug out, but immediately interred again by his lordship's orders."

"The other Barrow is situate in a cornfield, near Mr. Chafin's house, and he has been credibly informed that about the beginning of the last century, an opening was made in the side of this Barrow, and that beneath the level of the surface of the field a great quantity of human bones were found, and with them heads of spears, and relics of other warlike instruments, which were presented to the Earl of Pembroke, and are at this time at Wilton House."

19.—Went this morn to Kinston Hall in the Vale of Winbourne, to see Mr Banks,* my namesake, an old Batchelor of 70 and more. His house is an exceeding good one, but quite of the last age, as there is not one sash in the whole. Its furniture, however, of Pictures is very Capital; a Collection of Sr Peter Lellys portraits very fine; two Spanish boys eating fruit by Morellio [Murillo], a Lanscape by Bergem, a copy or original of Rembrants Rabbi. But four pictures are Remarkably Capital, perhaps Guido: they represent Pope Gregory the Great, the Great St. Augustine and two more of the fathers: but Mr Banks has no Catalogue and knows very little about them. In returning home this Morn, just at Blanford Horse Course, saw two Remarkable Birds seeming to be of the genus of Cheradrias. Some Shepherds informed me that they came here to breed but are exceeding difficult to shoot. I could make no particular observation but that they were near as large again as grey Plover,† had a white spot in each wing and whistled exceedinly shrill, not unlike a man: the shepherds also informed me that they Laid 2 eggs. I had almost omitted that we saw near Mr Banks's, upon the top of a hill, a regular entrenchment, consisting of three Banks raisd one above the other: had not an opportunity of going near it, but at a distance it much resembled one of those famous ones at Whitnam ‡ near Dorchester in Oxfordshire.

20.—Went to visit Mr Stert § at Critchill, who carried us to another house he has at Horton about two miles beyond it,

* MR. BANKS, of Kinston Hall.—This was John Bankes, Esq., of Kingston Hall, who died in 1772.

† GREY PLOVER.—These birds were probably Norfolk Plovers which are still summer visitors to Salisbury Plain.—[ED.]

‡ ENTRENCHMENTS AT WHITNAM.—I am informed that this passage refers to the well-known Sinodun or Dorchester Clumps, on the opposite side of the Thames to Dorchester (Co Oxon.), and above the village of Long Wittenham; visible on the left, just after passing Didcot Station, on the way to London.

§ MR. STERT.—This was Humphry Sturt, Esq., of Crichel. Henry Gerard Sturt, created a Baron in 1876 with the title of Lord Alington, is now the head of the family. Seat at Crichel.

where he shewd us the finest peice of artificial water * perhaps in England. It covers 280 acres, winding between two hills, so that one end is Generally out of sight. It has also an additional beauty, a wood of very fine oaks which come down quite to the Banks. It is well stockd with Carp, which M^r Stert sells to people who carry them to London, by which method he receives more money for the water than ever the Land brought him in. It is drawn once in three years and all the fish of a certain size sold. The last time 16000 weight were taken and sold for 6 pence a pound, which is 400 pounds. I should not forget to mention one very remarkable circumstance which occurrd in Raising the Head of this water. 35 feet was the hight requird, 25 feet of which they raisd without any difficulty, but when that was compleated, were much surprizd to find that after several days work they had not raisd it an inch. This put them upon inquiring the cause, and they found that any quantity of Earth they put, sunk in 48 hours to the original 25 feet. M^r Stert not

* LAKE AT HORTON.—At page 59 of Hutchins' *History of Dorsetshire*, 1st edition, 1774, vol. ii., is the following account of this lake :—

“Mr. Sturt has lately made near his seat one of the finest pieces of water in England, occupying 200 acres. On digging to make an head to it, about twenty feet below the surface was found a stratum of oyster and other kinds of shells; the latter seemed strongly impregnated with ore, and appeared silvered over.”

Mr. J. C. Mansel-Pleydell, F.G.S., F.L.S., of Whatcombe, near Blandford, has been so kind as to inform me, that the stratum Hutchins refers to is the lowest bed of the Woolwich and Reading beds, which rest upon the chalk. The oyster is *Ostrea Bellovacina*, which is referred to on page xxxii. of his *Flora of Dorset*.

I regret to learn from the Rev. W. Blachford Hill, the rector of Chettle—who has most kindly investigated the locality—that the lake is no longer in existence, having been drained 90 or 100 years ago. I will quote a portion of his interesting letter :—

“I next enquired at a cottage, where the man told me that the posts of the flood gates that kept the waters in were still in their old places, and stood up 20 feet high. That was at the lower end of the lake. I went into the field, considerable part of which formed originally the bed of the lake. The yellow Iris I saw in full bloom where once the water spread. Afterwards I called at the Vicarage and saw the Vicar. He told me that the property about 200 years ago (*i.e.*, from about 1690 to 1790 or thereabouts) belonged to the Sturts, and that they lived then in the great house. Then, from 1790 or thereabouts, the property belonged to the Shaftesbury family. They turned the great house, formerly occupied by the Sturts, into a farmhouse, and, land being considered more valuable to a farmer, drained the lake.”

discouraged by this disheartening circumstance resolv'd to back the head with piles in hopes that they might hinder it from sinking any further. This he did with trees 23 feet in Length, which he drove down with an Engine constructed for the purpose, at the same time taking account of the quantity of Earth that sunk by measuring the height of what he layd on. His piles did no manner of service. The earth continued to sink, and now he found the feild about twenty yards below where they were drove in began to rise, raising with it trees, particularly an Ash and an Oak, each of them Containing some tons of timber. The top also Crackd into deep chasms, plainly shewing that it was raisd by some lower stratum which the weight of the head forc'd under it. Mr Stert still perseverd. After some time his head began to rise and was then very soon compleated. The Quantity that had sunk was then cast up, and it was found that the head had sunk 87 feet, beside what was Lost before they even guessd at the Cause which hinderd them from raising it. The Soil on which the head was erected has not been examin'd deep, but what has been seen is Sandy Gravel, under which is a solid blue Clay containing most singular impressions of fish, resembling them by Mr Stert's account most exactly, not only in shape, but in a silvery Colour like that of fish, very thinly spread over them as the whole interior was clay. In that however was the prints of their bones. They were of several sorts, but chiefly whittings and Dories, very plainly to be distinguish'd. They were so much impregnated with Vitriolick Salt that they could not be preserv'd. Several that Mr Stert carefully brought home wasted in Less than 12 hours.

From hence we return'd to dine at Critchill. The house there is pretty good, much more chearfully situate than the other; a great deal of the best Planted Oak. I have seen one of them, nine feet in circumference, carrying up, I dare say, fifty feet of Boll. Mrs Stert keeps here several kinds of Birds and animals, particularly a Sanguin which she has had a year. It lives constantly in a small Deal box fill'd with wool and hay, had no particular care taken of it. Here is also a favourite of a very

extraordinary nature—a Bull, the finest I have seen. He was bred in Lincolnshire, and tho only 4 years old and very lean, the Butcher Guessed his weight to be between 70 and 80 score. He is a well-made beast and beautifully spotted. Mr Stert always uses him to draw by himself, for he will not do it with any other Beast, but singly will do as much work and draw as large a weight as two or three horses.

21.—This morn rains very hard, venture however out upon the downs to Observe the Long Barrow between the house and turnpike road in the way to Blanford: Find it like the first I examind, only Larger, its greatest lenth being about 100 paces, its breadth 20, bearings N.W. b N. and S.E. b S.: On the side of it one and only one plant of *Othonna integrifolia*, which is very scarce in this countrey, as I have only found it on this and one other Barrow.

I have now seen three of these long Barrows all within a circle of about 2 miles in diameter. What the occasion of making them in that shape is difficult to guess. Possibly they are the Common place of interment of the slain in a Battle, as their Long shape seems to indicate that they cover more than one Body: but this is vague conjecture. I hope however some time or other to have an opportunity of Opening one or more of them, by which alone it can be determined for what use and when they were erected.

Observed to-day in the Garden a very strong Plant of *Mellitis melissophyllum*. As it is the only plant of any degree of curiosity in the whole garden, it seems more than probable that it came originally from the woods somewhere in this neighbourhood.

22.—Set out this morn for Bristol.





Poxwell Circle.

By Rev. W. MILES BARNES.

(Read Sept. 10th, 1900.)



I HAVE been invited to be your guide at Poxwell, and to give you some account of the megalithic remains which are before you, and all too lightly I consented to do so, but have since had time to repent of having undertaken to be the instructor of others on a subject about which nothing definite is known.

On the last visit of the Field Club to this spot your late Treasurer, Mr. Cambridge, was your guide, and some notes of his from which I shall quote, together with a sketch of the circle and the surrounding country, will be found in Vol. X. of the transactions of the Club. A plan will be found in the Reliquary Quarterly Archæological Journal and Review for Jan., 1871, with a description, in which "the remains are described and their probable origin fully discussed."

Hutchins' account, written in 1774, is as follows:—"A quarter of a mile S.E. of Poxwell House, near to the great road to Weymouth, are 15 stones ranged in a circular form; one or two seem missing on the N.W., where, perhaps, was the entrance.

Some of these are quite level with, and some but little above, the surface of the ground; two of them on the S.W. above two feet, and broad, some scarce a foot high. They are all extremely old, rough, and irregular, and full of holes worn by the weather. They stand on a lump, round which are the remains of another circle. About 200 yards distance on the N.E. and E. are four pretty large stones, which perhaps formed another larger circle, or an avenue, to the former."

With respect to this description Mr. Cambridge says the account is "generally accurate, except as regards the four stones about 200 yards distant, and the almost complete disappearance of the ditch."

"I ought to mention," he continues, "that about half a mile or so N.E. of the circle, quite on the other side of the ridge, are four other large stones from three to four feet in height (or length) lying now in confusion, having been subjected to more or less recent disturbance."

Some men have no idea of distance, as those who have had occasion to inquire their way in the country will know, and it seems possible the four stones which appeared to Hutchins' informant about 200 yards away were really these stones which are nearly half a mile distant, and that they are broken down menhirs, monoliths, a kind of totem poles.

Dr. Colley March pronounces the material of these stones to be a cherty limestone from the lower Purbeck, which crops out here. Dr. March has examined most of the megalithic remains in this part of the country, and this is the first instance he has found of any other material than sarsen stone or tertiary conglomerate having been employed for this purpose.

As to the stone circles, menhirs, cromlechs, bee-hive huts, dolmens, and other megalithic remains in this island, the question will present itself—Who built them, who built Stonehenge and Avebury, and for what purpose were they built? I am afraid no very conclusive evidence can be offered on these points, though several theories have been propounded. There is one markworthy characteristic of all theories about works of

prehistoric antiquity : they cannot be disproved because they are prehistoric, and no documentary evidence about them exists. It might be said that Stonehenge and Avebury were built by the South Sea islanders, or with more semblance of truth by the Egyptians, instances of work of a similar character being adduced as evidence of the latter. You cannot prove that they were not, because being prehistoric there is no evidence anyway ; you can only express your doubt, and your belief that they were not built either by the South Sea islanders or by the Egyptians.

In prosecuting your enquiries, then, you have this very great difficulty at the outset, that you have no documentary evidence to guide you, and that you can only weigh probabilities and accept the theory which seems to you most reasonable after doing so.

Until comparatively recent times these remains were all considered to be Celtic, and the circles were thought to be temples in which the Druids conducted some of their rites, perhaps associated with the worship of the sun. The most solemn oath administered by the Druids to their disciples showed their reverence for the sun, and possibly their worship of it. They swore " By the bright circle of the golden Sun."

Some antiquaries, as Mr. E. Barclay (" Stonehenge," 1895), ascribed Stonehenge and Avebury to the Britons of Roman or Post-Roman times. First, because no mention of these stupendous works is made by any Roman writer ; though no less than six Roman historians wrote on Britain, and there are Roman roads on each side of Stonehenge. And secondly, because at Stonehenge some of the inner trilithons show signs of having been worked by a tool, and chisels have only been found in tumuli of late date.

Another theory is that all these megalithic structures—Stonehenge, Avebury, the smaller circles, beehive huts, dolmens, cromlechs—menhirs, were all the work of the long-headed (dolichocephalic) Aryan race, who are supposed to have migrated from Central Asia in the neolithic age, and to have

spread gradually over Asia, including Arabia, India, and Syria, and through Europe to Gaul and Britain. Megalithic remains of a similar character to those found in this land are to be seen in all these countries.

It is further supposed that most of these remains (not, of course, beehive huts) are sepulchral, or connected with sepulchral worship. If this theory should prove generally correct I suppose it is possible that these circles may have been used for the double purpose; for interment, for it has been proved that there have been interments in some of these smaller circles, and for sepulchral rites, and for rites connected with the worship of the spirits of the departed. The Roman mausoleum was sometimes thus used for rites in connection with the departed as well as for a memorial of him, and a place to contain his ashes. A Roman tomb outside the gate of Pompeii still contains, besides the ashes of the dead, a funeral triclinium, upon which food was offered, probably on the festival called Feralia, and some rites performed to the manes of the departed.

Recent investigations by scientists have somewhat shifted the ground of the enquiry. It is now held by many that the cradle of the Aryan dolichocephalic race was Europe, not central Asia, and that the Asian Indo-Iranians were a migration from the main body in Europe. Stonehenge is "generally assigned by Archæologists," so Dr. Taylor states, "to the brachycephalic (Celtic) race, which first introduced bronze weapons and Aryan speech into Britain." The arguments are all most interesting, and will be found fully stated in Dr. Taylor's "The Origin of the Aryans," and Elton's "Origins of English History." I will not take up your time by entering into them here, as they are not directly connected with my subject. It will suffice to say that the theories concerning these structures generally assign them either to the primitive dolichocephalic race, which inhabited these islands in neolithic times, or the Celtic brachycephalic race which settled here at the close of that period.

There now seems to be a new theory that these stone monuments and circles were constructed by the Phœnicians, who had

colonies in Britain. As Mr. Cunningham has stated in "The Influence of Phœnician Colonization," in last year's transactions of the Field Club, the probabilities on that side, I will state some of the probabilities which occur to me on the other side, so that both may be weighed. And if I have to express myself rather forcibly occasionally, I hope Mr. Cunningham will not feel that forcible language springs from an unfriendly feeling, but rather from a fear lest the argument should lose anything through the restraints of friendship.

First, had the Phœnicians colonies in Britain? Civilized nations like the Phœnicians, who wished to plant colonies amongst barbarians were in face of a difficulty which modern nations have not. A battle in those days meant a series of single combats in which the man with the longest sword and the greatest skill and strength in using it was the victor; something was due to tactics and strategy, but the strong arm and practised skill went for more. Consequently, the two sides had to be more evenly balanced than in these days, when a few men armed with Mausers, Creusot guns, and Pom-poms, are a match for thousands of savages.

What force had the Phœnicians to bring to England besides their colonists, to make good their possession? Cæsar, on his first expedition to Britain, brought two legions with him. But, presumably, finding two legions insufficient, in the following year (B.C. 55), he brought five legions with him. He reduced the Britons to subjection, but as he left no garrison the Britons revolted on his departure. Boadicea utterly destroyed one legion, and was very nearly defeating a much larger force. Suppose, we say, that the Phœnician force was only equivalent to one legion, 10,000 men, and that these men were also the colonists, how were they brought here? Cæsar fought his way up through Europe, and had only to camp on the other side of the Channel long enough to build vessels sufficiently strong and numerous to transport his army across the Channel in settled weather. The Phœnicians would have had to convey their whole army by sea from Tyre, Cyprus, Carthage, or other Mediterranean ports, and

to carry sufficient supplies and stores, including food for from ten to fifteen thousand soldiers and sailors on a voyage of very uncertain duration, since oars and sails were the only means for propelling their vessels. The ships must also be large enough and strong enough to face heavy gales in the Bay of Biscay, the Atlantic, or the English Channel. At what period in their history could they have done that? If at all, could it have been at any other period than when they were in the highest state of civilization and in the zenith of their power.

We may arrive at the same conclusion from another point of view. Glance at a map of ancient Europe, and you will see that there is reasonable ground for believing that the colonies nearest Phœnicia were planted before those that were more distant, so that Cyprus, Rhodes, Crete, Carthage, perhaps Thrace, Sicily, and Sardinia received their colonists before Spain and the parts about the Straits of Gibraltar. As one evidence of this, note that Carthage in Spain was called *Carthago nova*.

And this suggests a question—how is it that, if England was colonised by the Phœnicians at so late a period, there is no record of it? How is it that there is sufficient evidence of the existence of these very early colonies, and none of the latest as Britain, and at a time, too, when historical evidence was multiplying? I have only to do with colonies. I do not enter into the question whether there were any Phœnician settlers in Cornwall. It seems not improbable that there may have been a few Phœnician settlers there connected with the tin trade; they might have come by the regular trade route, which, according to Diodorus, was across the Channel to Gaul, thence through Gaul to Marseilles and the Mediterranean, so that at the time to which he refers the Phœnicians might have received tin from Britain without leaving the Mediterranean.

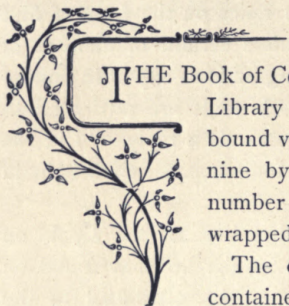
But allowing that the Phœnicians did found colonies in England. Where was the seat of them? Besides Cornwall Mr. Cunington suggests Portland, the Isle of Purbeck, Salisbury, Marlborough, and elsewhere. The only kind of evidence offered of the occupation of Portland is that there were beehive



Notes on the Book of Gerne.

By E. DORAN WEBB, F.S.A.

(Read Feb. 26th, 1900.)



THE Book of Cerne, now preserved in the University Library at Cambridge, consists firstly of a bound volume, each page of which measures nine by seven inches, and, secondly, of a number of loose leaves, which at present are wrapped up in paper and tied to the former.

The oldest portion of the manuscript is contained in the bound part, and consists of four separate accounts of the Passion and Resurrection of our Lord, taken from the Evangelists ; each account is prefixed by an illuminated title page, photographs of which, taken by our energetic Hon. Secretary, I have the pleasure of laying before the Society. The accounts naturally vary in length ; those taken from S.S. Matthew and Luke are each contained in eighteen and a half pages, while that from S. Mark occupies three pages less.

At the back of the illuminated title page of the Passion according to S. Luke is an acrostic in the form of a prayer ; taking the initial letter of each line the two following words are formed :—
AEDELVALD EPISCOPUS. Mr. Fry notes in his pamphlet

The four Illustrations contained in the Book of Cerne, from photographs of the original taken by Nelson M. Richardson. These represent the Evangelists with their emblems, and are executed in rather dull water colours, chiefly red, greyish blue, purplish brown, and pale yellow. The drawings at the bottom of Figs. 1, 3, and 4 have been added by a later hand.

The inscriptions are as follows:—

Fig. 1.—HIC MATHEUS IN HUMANITATE. HIC MATHEUS IN ANGELICA ASPECTU
VIDETUR.

Fig. 2.—HIC MARCUS IN HUMANITATE. HIC MARCUS IMAGINEM TENET LEONIS.

Fig. 3.—HIC LUCAS IN HUMANITATE. HIC LUCAS FORMAM ACCEPTIT VITULI.

Fig. 4.—HIC IOHANNIS IN HUMANITATE. HIC IOHANNIS VERTIT FRONTEM IN
AQUILAM.

(Each figure occupies a whole page of the MS., and is here represented of rather more than a third of the original size.)

FIG. 1.



FIG. 3.



FIG. 2.



FIG. 4.

on the manuscript that Bishop Ethelwold of Winchester, 963 to 981, the founder and first Abbot of Abingdon, had for a pupil ÆLFRIC the first Abbot of Cerne, who was afterwards Archbishop of Canterbury.

It is worth noticing that ÆTHELWEARD was Bishop of Sherborne in 909 and ÆLFWOLD in 958.

It is not necessary for me to say more on this part of the manuscript owing to the fact that an admirable editor has been found in the person of Dom : Kuypers, who has recently completed a transcript of it, which is now passing through the Press. I must confess to having devoted but little of the somewhat scanty time at my disposal to the remaining pages of the bound volume, a good part of which, namely, the sequences used at Cerne, have already been printed in Weale's "*Analecta Liturgica*," in fact, although the bound volume is of far greater general interest than the loose pages, these latter, from the local information which they contain, will naturally appeal to all Dorset folk. The first entry on page one is the copy of an indulgence of twenty days granted by E, Archbishop of Canterbury and Papal Legate; this is followed by a relaxation of fifteen days of penance granted by Jocelyn to all those who by their almsgiving had helped on the work of the re-edification of the Monastery of Cerne. Jocelyn de Bohun, you will remember, was Bishop of Old Sarum from 1142 to 1184, and helped to frame the "*Constitutions of Clarendon*."

A similar grant from the same prelate forms the next entry, and then comes an account of how on [the 17th day of July] the Feast of St. Basil, in the year of our Lord 1311, Gilbert, Lord Bishop of Enaghdone, in Ireland, dedicated an altar in the Chapel of Cerne Abbey [capella Abbatis Cernel] in honour of S.S. Stephen and Laurence, martyrs, and S. Katherine, virgin—"et in annuis festis singlorum concessit xx. dies indulgentia."

In the same year "*crastino Sancti Basilii*." The aforesaid Bishop "*dedicavit totam capellam de Infirmarii Cernelii in honore gloriose virginis Marie, S. Margarete et S. Appolonie*," and furthermore granted thirty days indulgence for ever.

Simon of Ghent was then Bishop of Salisbury—1297–1315.

Eighty-five years passed away between the dates of this last entry and of the next, the 12th of November, 1396, when Henry, Lord Bishop of Enaghdone, in Ireland, Suffragan of our Lord Bishop of Salisbury, Richard Medford, dedicated two altars in the Chapel of Nuthercerne—namely, the high altar in honour of All Saints, and an altar “in australi parte sive Æla” of the same Chapel in honour of St. Ethelrede, virgin, “tempore D.M., Roberti xxiv., abbt Sacristaria in manibus ejusdem abbt existent.”

Henry Twillow, Suffragan to Richard Mitford or Medford, Bishop of Salisbury, 1395–1407, was Bishop of Enaghdone, a small bishopric some four or five miles from Tuam, in Ireland. Jones in his “Fasti” says that he was made Suffragan 19th Jan., 1397; he was certainly acting in that capacity two months earlier.

The latest entry in point of date on this page is that:—A.D., 1418, on the seventh of March, Roger de Mortevas, Bishop of Salisbury, dedicated the high altar of the Church of Cerne monastery “in honore dei genetricis Marie et Sancti Petri apostolorum principis,” the Bishop. Roger de Mortival was Bishop of Salisbury from 1415 to 1430. Turning over the page we come upon a petition from “Robert of Cerne, a humble servant of the Church, to his illustrious lord, Henry, king of the English.” Then come copies of Charters. I have copied one:—“Henricus rex Anglie et Dux Normannie et Aquitannie et Comes Andegavie. Vicecomitis et ministris suis toti: ? Angliæ salutem. Sciatis me concessisse abbacie de Cerne Wreckum per omnis terras suas super mare et bellum et polam et forum in villa de Cerne cum omnibus libertatibus suis militibus et libere tenentibus et eorum servitiis faciendo in servicium duorum militum ad scutagium et unum militum in expeditione. Test. Ric: epo. Winton et Willielme com de Arundel et Reginaldo comite Cornubie apud Wodestokam.” After various memoranda comes an inspeximus of Henry II., dated 24th of May, quinquagesimo quarto; the witnesses are W. Archbishop

TRANSCRIPT OF FIG. 5. (Page of the Book of Cerne).

quod nequiter egi. Suscipe penitentis lacrimas miserere misericors. Indulge quod feci et hoc praesta ne faciam. Tu conspicias domine pericula mea. in quibus consisto. et quibus malis circum datus sum quantisque per meritum meum premar aduersitatibus libera me protege me et defende ut non rideant deme inimici mei tu es deus meus sola spes mea. Inte solum confido de nullius hominum solacio spero. Guberna me ut pius pater ut post tantas talesque procellas saeculi undique saeuientes ad portum salutis aeternae Te duce merear per venire. et cum aliis quos eripuisti laudare. Te o bone deus per infinita saecula saeculorum. Amen:—

DEUS gloriae qui unus et uerus Item sancta oratio. qui solus et iustus es in quo omnia et sub quo omnia per quem omnia facta sunt. exaudi me domine orantem sicut exaudisti tres pueros in camino ignis. exaudi me orantem sicut exaudisti susannam et liberasti eam demanu duorum inimicorum testium.

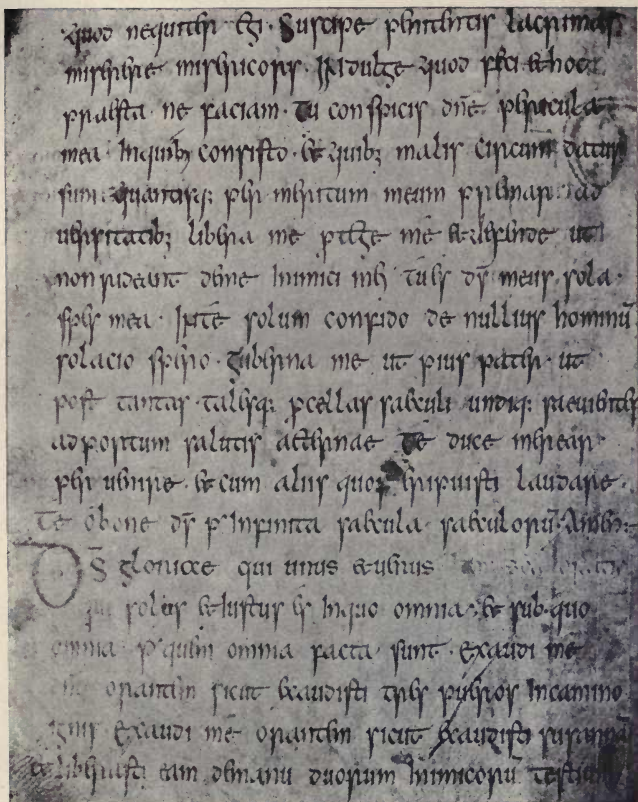


FIG. 5.—A page of the Book of Cerne from a photograph of the original taken by Nelson M. Richardson. A transcript is appended.

NOTE.—The indistinctness in the photograph of the words “Item sc̄a oratio” is caused by their being in red ink.

(About half the size of the original page.)

of York, H. Winton, C. Wygorn [Worcester], Bishop Richard, the king's almoner, Wde. Valence, "*fratribus nostris*," John de Warrenne, Comite Surr, Thom. Basset, Robertus Walerand, Roberto Aenginglum, Willielmus de Wynthesyll, Willo Belet, Radulphus de Bakepuz, Stephane de Edurick, Reg. de Wanton, et aliis. Datum per manum nostram Westmanasterium.

After all these deeds with their somewhat dry legal phrases it was a relief to come upon a record of what a mediæval Dorset Field Club had done in the way of making a topographical survey of the County in 1225. Here is the heading:—

"*Hoc est perambulatio facta in Comitatu Dorsetie.*

Coram H. de Yeovile et Briano de Insula et magistro H de Cernel et Wde Moreville et Johanne de Lanceleveie Justiciariis Per isto milites juratos.

Scilicet:—Henr. Tuneire, Walt de la Grave, Rob. de Port, Henr. de Stokel, Will Cusin, Will. filium Henrici, Alexandrum de Laverstoke, Luca Russel, Johann Pulein, Walt de Melebure, Walt de Wike, Rob. de Blokesworde, Reg. de St. Edwarde, Robertum de Wearmeulle."

The main results of the deliberations of these worthies of old Dorset was that they determined the boundaries of the two great forests of Gillingham and Blakemore. The deed itself is too long to read to you now. I think that I have said enough to show you how much of interest lies in the loose sheets of the Book of Cerne; quaint odds and ends of information are scattered throughout its pages. In this way we learn from a table of the Sovereigns of England from the Conquest, folio 4, part I., that Henry the Second was called by his contemporaries "*ffytz-Empresse*." I earnestly hope that an editor will be found who will do for these loose sheets what Dom: Kuypers has done for the bound volume. To transcribe these few pages of manuscript and to publish them in a pamphlet of fifty pages or so would not be an expensive matter, and should earn the gratitude of every member of the Dorset Field Club.

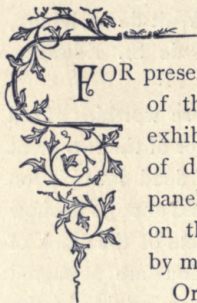


On some Roman Pavements and
some Intrecci of this Country, chiefly
with respect to their Meaning.

By HY. COLLEY MARCH, M.D., F.S.A.

(Read Dec. 19th, 1899.)

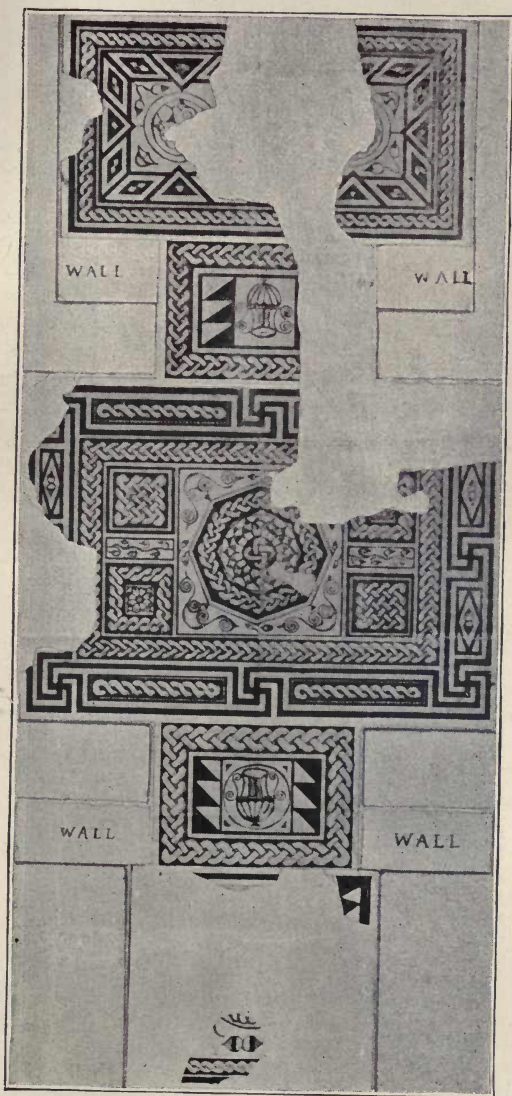
I.—ROMAN PAVEMENTS.



FOR present purposes, the tessellated Roman pavements of this country may be divided into those that exhibit nothing more than a general scheme of decoration, and those that are set out into panels or ornamental fields, which are occupied on the one hand by symbols, and on the other by mythological or allegorical subjects.

Orpheus charming wild animals, the various divinities of a comprehensive pantheon, the presentment of a popular fable, emblems of the Seasons, Nereids, Dolphins, and Hippocamps: all these tell their own tale.

But symbols have an esoteric meaning. To discover and demonstrate this, let the tessellation recently exposed near Dorchester serve for a text, while as illustration we possess upwards of 50 others, of which the most important are at Frampton, Silchester, Caerwent (Venta Silurum), London, Brading, Lincoln, Leicester, Bath, Corinium or Cirencester, Uriconium or Wroxeter, Great Whitcombe and Stockwood in



ROMAN PAVEMENT FOUND IN OLGA ROAD, DORCHESTER, IN 1899, AND NOW LAID ON THE FLOOR OF THE DORSET COUNTY MUSEUM.

Extreme length of portion shewn above, 40ft. ; breadth, 18ft.

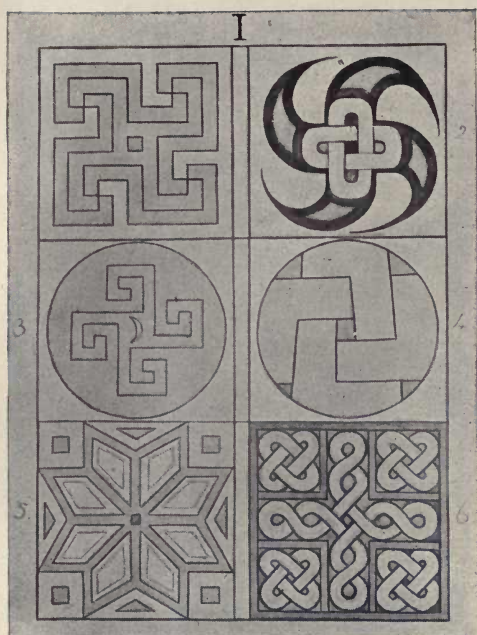
This central portion was surrounded by a broad border of plain red tesserae.

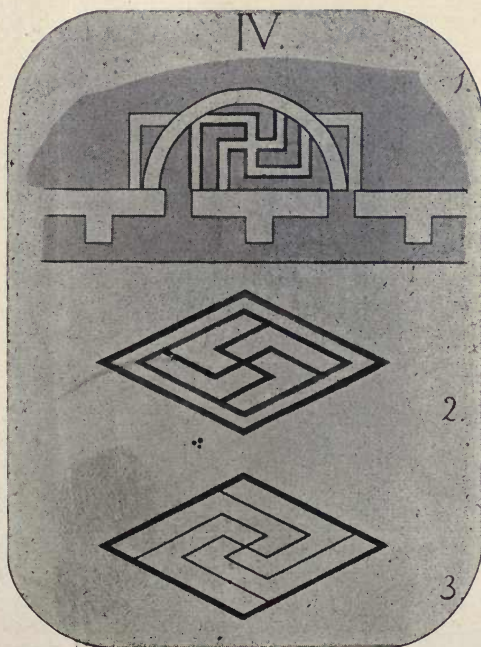
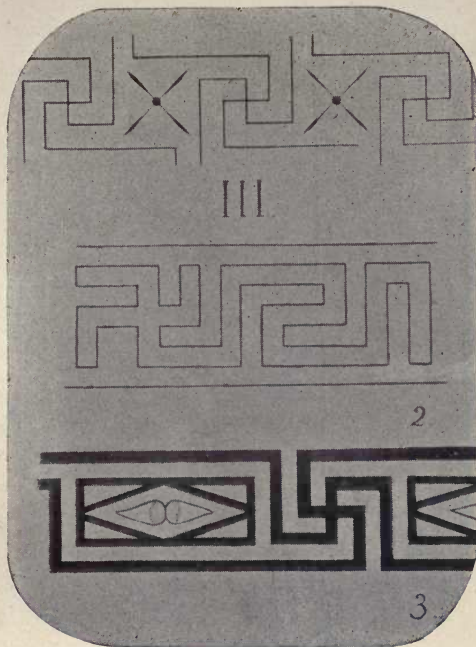
AN ACCOUNT OF THE ILLUSTRATIONS.

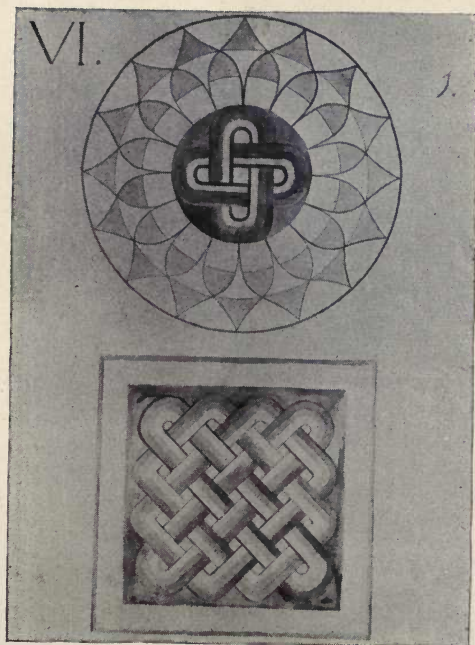
- I.—1. A fretted fylfot, with square sun in the centre. Mosaic, Newton St. Loe, near Bath.
2. Normal curvilinear fylfot, with solar duplex in the centre. Mosaic, Newton St. Loe.
3. Fretted fylfot, with lunar crescent in the centre. Pre-Christian coin from Crete.
4. Shell gorget, solar duplex. Found with other solar symbols in pre-historic grave mounds, Fain's Island, Tennessee. *Bureau of Ethnology*, 1880-81, p. 270.
5. Eight-rayed solar glory, fretted, with square central sun. Mosaic, Newton St. Loe.
6. Solar cross, of equal limbs, with a solar duplex in each angle. Mosaic, Lincoln.
- II.—A. Roman Altar with normal rectilinear fylfot in apposition with lunar crescent. Hadrian's Wall, Northumberland. *Art Journal*, 1875, p. 369.
- B. Roman Altar with normal rectilinear fylfot in apposition with solar disc. Ditto.
- III.—1. Detail from Egyptian Tomb Ceiling. Prisse. Flinders Petrie, *Art in Egypt*, p. 37.
2. Detail from pre-Christian Greek Vase. Goodyear.
3. Detail from mosaic, Dorchester.
- IV.—1. Fylfot isolated from a fret. Mosaic, Brading.
2. Empanelled fylfot. Mosaic, Silchester.
3. Ditto. Mosaic, London. A similar one occurs in a Pompeian mosaic.
- V.—1. Fylfot with disc in centre. Detail from a mosaic, Caerwent.
2. Solar cross, eight-rayed solar disc, solar path, and fylfot constructed of avian heads. Shell gorget, from stone grave, Tennessee. *Bureau of Eth.*, 1880-81, p. 284.
- VI.—1. Irradiant solar disc, with solar duplex in the centre. Mosaic, Dorchester.
2. Solar-quadruplex. Ditto.
- VII.— Solar duplex, triquetra, and bind-knot, on a Christian cross. Disley, Cheshire. Romilly Allen, *Early Christian Monuments*, plate vi.
- VIII.— Christian cross resembling the solar cross shown in Illustration I., 6, with a twisted duplex at the end of each lateral limb, and two peacocks feeding from a vase at its base. S. Pietro, Villanova. End of VIII. century. Cattaneo, p. 208.

- IX.—1. Solar disc with lotus glory, Temple of Isis, Pompeii. Goodyear.
 2. Solar disc irradiant with lotus elements, Baptistry at Cividale, A.D. 737. Cattaneo, p. 109.
- X.—1. Conventional vase. Mosaic, London.
 2. Ditto. Mosaic, Dorchester.
 3. Lotus elements from Egyptian tomb-ceilings. Goodyear.
 4. Ditto, ditto.
 5. Lotus curled-leaf motif. Detail from mosaic, Scampton, Lincoln.
 6. Curled-leaf motif. Detail from mosaic, Silchester.
- XI.— Solar triplex, empanelled by the lotus curled leaf motif. Mosaic, Corinium or Cirencester.
- XII.— Roman Legionary Ensigns, all of solar significance. Elworthy.
- XIII.—A. Lotus elements becoming triangular. Pre-Christian vase, Ormidia, Perrot and Chipiez, *Art in Cyprus*, II., 306.
 B. Lotus elements fully changed into triangles and squares, on the neck of a vase. On its body are conspicuous lotus flowers and buds. Ditto, ditto, II., 308.
- XIV.—1. Detail from neck of another Ormidian vase enlarged.
 2. Vase with triangle supports. Mosaic, Dorchester.
 3. Vase from Etruscan cemetery, with feeding birds. *Art Journal*, 1882, p. 21. Dennis, *Cities and Cemeteries of Etruria* II., 437.
- XV.— Quadruplex and Biting Animal. Christian Cross, Durham.
- XVI.— Intreccio of "worm-knot:" the death-throe of Evil. Gosforth churchyard, Cumberland.
- XVII.— Intrecci on the Tarsus seal, of hæmatite, B.C. 2000.
- XVIII.— Decorative Complex, representing a mat, on which a vase rests. Mosaic, Frampton, Dorset.
- XIX.— Tied and tail-biting animals; and a decorative complex. Saxon coffin lid, Bakewell.
- XX.— Vineal intreccio. Rous Lench.
- XXI.— Thor's Hammer and the serpent's death-knot. Monolith, Stenqvista, Sweden.
- XXII.— Sigurd and the dragon Fafni, tied and pierced. Carved on granite, Ramsundsberg, Mälär Lake, Sweden.
- XXIII.— The "Forum Cross." Cattaneo, p. 190.



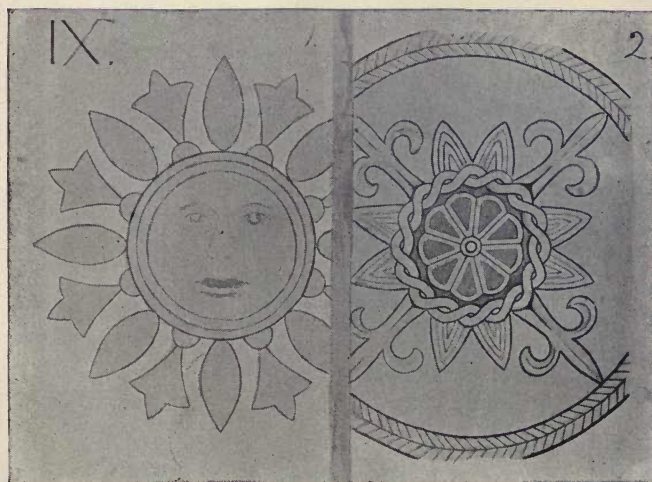


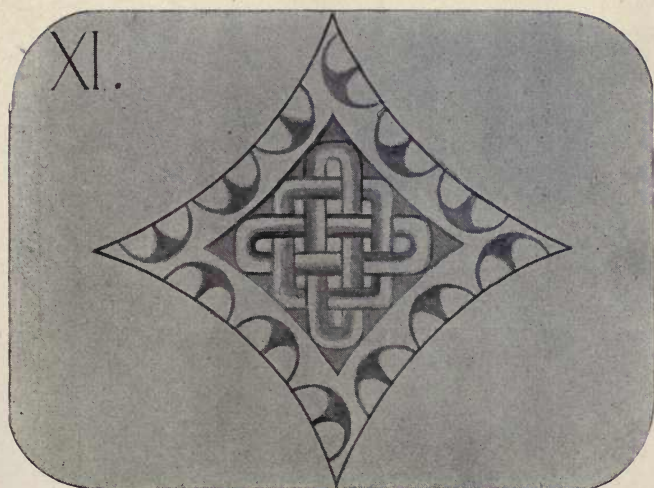
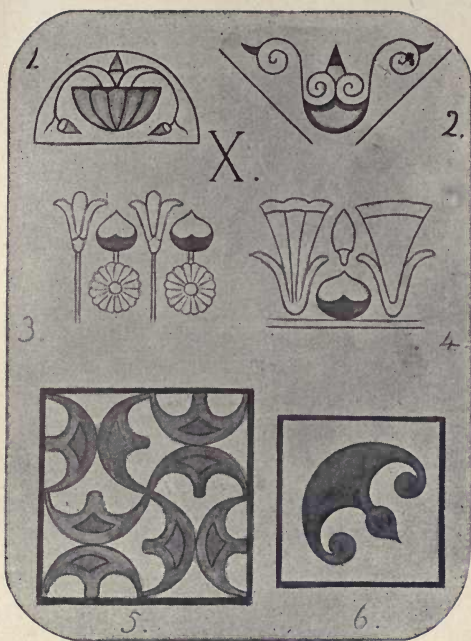






VIII.







XIV.

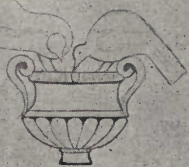
C.



1.



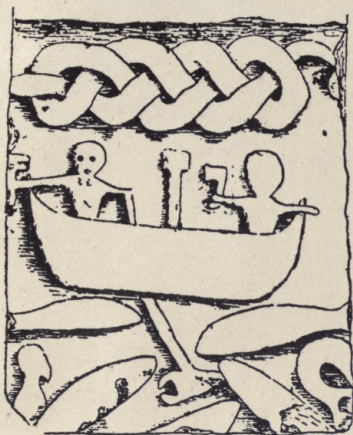
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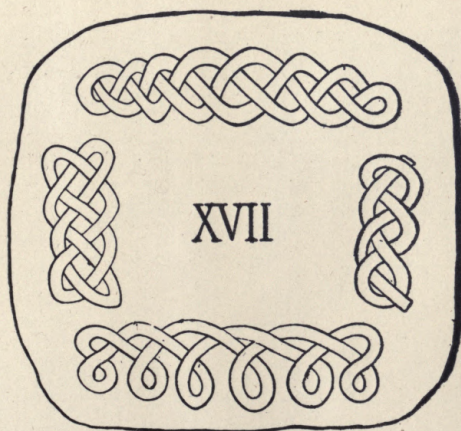
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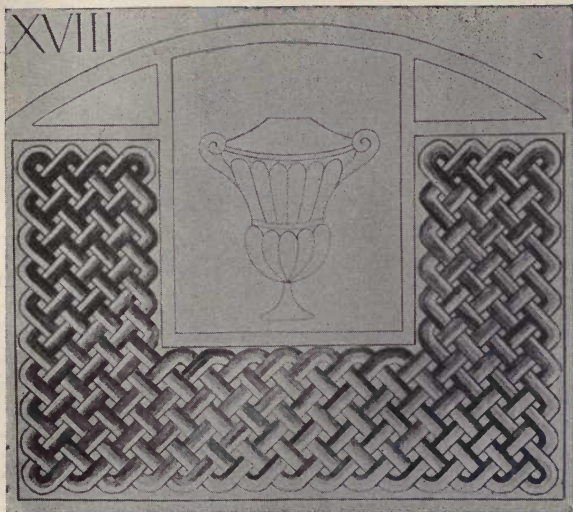
XV.



XVI.



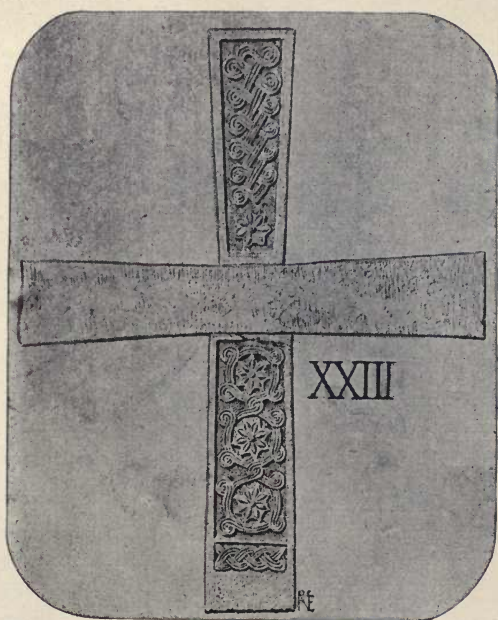
XVIII



XIX.







Gloucester, Basildon in Berks, Bignor in Sussex, Worplesden in Surrey, Mansfield Woodhouse in Nottingham, and Aldborough in Yorkshire. And these British examples should be compared, in the mind's eye, with the graceful mosaics of pre-Christian Greece and Italy.

Turning now to the Dorchester pavement, let us ask ourselves, Is it Roman at all, in the sense that it was wrought by Latin artists from designs current in the Eternal City? Is it Italian at all? Or does it not show, at any rate, a barbaric influence, an attempt to satisfy exotic tastes?

If such questions cannot be answered, at least they can be asked, and they should be borne in mind as we proceed to show that this mosaic has a solar significance and was addressed to men who were attracted by a solar cult.

For who were the peoples brought hither by the Romans to conquer and garrison this country? From the north of Europe were Batavi, Menapii, Frisii, Tungri, Morini, the Brittones who were natives of Gaul, Nervii, Galli, Lingones, and Vangiones. From the south came Daci and Rhæti, Thraces, Dalmatæ, Astures, Varduli, and Hispani, together with Hamii, who furnished a company of Syrian archers. No doubt these troops were, for the most part, officered by Italians, but we know of some that "they passed into Britain under the command of their own chiefs and added new laurels to their former fame."*

The Gaulish Atrebatæ had been sent into this country by Cæsar, under Commius the Prince of Arras, and had built a great city at Silchester; and the early towns of Ilchester and Bath were the work of the Belgæ.† And it is well to remember that Carausius, an obscure Batavian pilot, was able, in the year 288, to make himself Emperor of Britain, where he ruled for six years.

The favourite solar divinities in this country during the Roman occupation were Apollo, Serapis, and Mithras. Of the Mithraic cult little is known. It was introduced into Rome 70 years before Christ, was established there under Trajan A.D. 98, and

* Tacitus, *His.* iv., 2.

† Elton's *Origins*, pp. 304, 343.

was continued till the time of Julian, A.D. 360. It competed with Christianity by using similar symbols, rites and festivals. In the reign of Septimius Severus this worship was widely diffused and highly popular in the western part of the Empire. Elagabalus, who became ruler of Rome A.D. 218, and his first cousin Alexander Severus, by whom he was succeeded in 222, were both, while almost children, made priests of the Syro-Phœnician sun-god. The cremated remains of Severus were preserved in the "Portland Vase," upon the base of which Mithras is represented adorned with a Phrygian cap. Coins of Elagabalus in apposition with the sun-god have been found at Uriconium or Wroxeter.

A bas-relief in the Court of the Belvedere at the Vatican, represents Mithras slaying the bull, with the legend SOLI INVICTO DEO.* In the year of Grace 321, Constantine issued an edict by which he enjoined the solemn observance of the Dies Solis or Sunday, whereby he pleased both Christians and Pagans. Before his formal conversion in 337, his favourite divinity had been the sun-god Apollo; but his coins of copper were stamped on the reverse with the words SOLI INVICTO COMITI, a phrase usually applied to Mithras, and money with a like legend was struck in London.†

At Bath was a temple to the Sun, whose head is carved on the pediment; and if *Aquæ Solis*, be indeed *Aquæ Sulis*, *Sul* is a Belgic name.‡

At Vindobala or Rutchester, was an altar inscribed SOLI APOLLINI; and at Magnæ or Carvoran, were two addressed to Jupiter Heliopolitanus. At other stations on or near Hadrian's Wall, have been found many altars to Mithras. Hübner records twelve.§ Indeed more altars were dedicated in Britain to the Invincible Mithras than to any other single god. There was one at Vindobala or Rutchester, where the Frisians were quartered; at Corstopitum or Corbridge with the Nervii; at

* Lundy, p. 163. † Wright's Uriconium, p. 443. ‡ Gaulish, Littré.

§ Nos. 99, 349, 434, 481, 541, 579, 645, 646, 650, 833, 890, 1,039.

Bremenium or High Rochester with the Varduli ; at Borcovicus or Housesteads, with the Tungri, where the inscriptions are INVICTO MITRAE, and DEO SOLI INVICTO MITRAE, and where there was a Mithraic cave. At Riechester in Northumberland, was an altar SOLI / HIERON / V.L.M., Hieronymus to the Sun ; and Mithraic monuments have been discovered at Cambeck Fort, in Cumberland.

Altars to Mithras have been found at Longovicus or Lanchester,* with the first cohort of the Lingones, and at Segedunum or Wallsend, with the fourth cohort of the same troop. The Lingones were a portion of the Legio Secunda Augusta, which also furnished garrisons at York, and, what is more to our purpose, at Caerwent and the stations † between Exeter and Richborough, doubtless including Dorchester. Small sacrificial bulls of bronze have been found in Dorset, and are, probably, of Mithraic import.

Hadrian devoted himself to Serapis, the divine equivalent of Osiris, who was associated with the nocturnal sun-god of Egypt ; ‡ and Isis and Serapis were usually worshipped in the same temple.§

A college of priests of Isis was founded at Rome, B.C., 80 ; a temple was built there in honour of Osiris and Isis, B.C., 44 ; and soon afterwards their festival was recognised by the official calendar. A portrait exists of Prescennius Niger, who is represented amid the friends of Commodus, as celebrating the mysteries of Isis. ¶

The bust of Serapis appears on a gem with the legend EIS ΘΕΟΣ ΣΑΡΑΠΙΣ. On another, Serapis is seated, whilst before him stands Isis, with the legend Η ΚΥΡΙΑ ΙΣΙΣ ΑΡΗΗ, "the Virgin-lady Isis." Her priests practised celibacy, the tonsure, and the surplice ; and the flower she wore was the lotus.

* On Watling Street.

† Tamara, Isaca, Voliba, Uxella, Ischalis, Venta Belgarum, &c., Ptolemy.

‡ Vide "Hymn to Isis," Elton's *Origins* p. 340, and "Hymn to the sun-god Aten," Petrie's *Hist. of Egypt* II., 215.

§ Tacitus, *Hist.* IV., 84, ¶ Spartien.

There was a Serapeum at York, as disclosed by an inscription
DEO SANCTO / SERAPI / TEMPLVM A SO / LO FECIT CL HIERONY /
MIANVS LEG / LEG VI. VIC.*

Tacitus observes that the worship of Isis was established among the Alamanni, † and coins stamped with the effigies of Isis, Horus, Osiris and Anubis have been found in Britain, and some of them were struck in London.

It is clear that there was a wide stream of religious influence flowing from Egypt to this country. Thanks to papyrus rolls, we are acquainted with the beliefs that attached to the solar cult on the Nile, and with the doctrines that concerned the passage of the soul through the horrors and dangers of the underworld, protected by Ra and guided by him through the Gates of the Hours. To these religious conceptions, that filled the minds of devout men in the centre and source of civilization for thousands of years before the Christian Era, we must frequently refer.

Rightly to consider mosaics like this of Dorchester, it is necessary to proceed from the well-known to the less known, and so to the unknown. Perhaps the most easily recognised symbol in the world is the fylfot, otherwise termed swastika, gammadion, and tetraskelē. Opinions have differed as to its realistic significance. It has been called a fire-drill, lightning, a pledge of blessedness or good fortune, the spiral sweep of the stars, the axial rotation of sun or moon, the four winds of heaven. But all these ideas are included in one sufficient expression: the fylfot is a symbol of divine energy.

Its normal curvilinear form is shown in Illustration I., fig. 2, taken from the pavement of Newton St. Loe, near Bath. Precisely similar swastikas are found on mosaics at Caerwent, Silchester, Wroxeter, and Lincoln.

Its normal rectilinear form is shown in Illustration II., figs. 1 and 2, taken from Roman Altars on Hadrian's Wall, where it is carved in apposition with the lunar crescent and the solar disc.

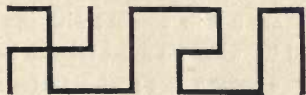
* Wright, *Celt, Roman, and Saxon*, p. 329.

† *Germania*, ix.

One of these altars, at Amboglana or Birdoswald, was dedicated to Jupiter by the Dacians; another was raised at Bremenium, at High Rochester, in the time of Elagabalus, by Lucius Cœcilius to Minerva, and the Genius of the College; and a third was erected at the same place by the 1st Cohort of the Varduli, whose cavalry was 1,000 strong, to their Genius and standards.

The fylfot, the "fully footed" symbol, had a great vogue in Europe throughout an area co-extensive with that of the use of bronze. It first appeared, according to present knowledge, at Hissarlik, many centuries before the time of Christ. It is so often presented in apposition or in conjunction with more especial solar symbols, that D'Alviella regards it as a counterpart sign of the sun.

The Egyptians, in the ceiling decorations of their tombs, had evolved a beautiful wandering rectilinear design, Illustration III., fig. 1, with no intention whatever of producing a swastika, for this was a device of which they seem to have been wholly ignorant. But the quick-witted Greeks, well accustomed to it, recognised its familiar lines even in the implication of a foreign fret, and, as Mr. Goodyear points out, on a geometrical vase assigned to the vi. cent. before our era, this detail was separately treated. It is shown in Illustration III., fig. 2, and for my own part I have sometimes fancied I could read in it the archaic Greek letters $\chi\rho\eta$ or $\chi\rho\acute{\omega}$ a contraction of $\chi\rho\alpha\delta\upsilon$ imperative present of $\chi\rho\delta\omicron\mu\alpha\iota$ a word sometimes placed on a gift, with the meaning "make use of me."



or $\chi\rho\acute{\omega}$ a contraction of $\chi\rho\alpha\delta\upsilon$ imperative present of $\chi\rho\delta\omicron\mu\alpha\iota$ a word sometimes placed on a gift, with the meaning "make use of me."

However that may be, we find on the Brading tessellation, that the designer has detached this portion of an ordinary braid, has placed it at the head of a beautiful mosaic pavement, and has thrown an arch round it, to isolate it, and to prove to all beholders that he, at any rate, could see a swastika even when hidden in a fret, Illustration IV., fig. 1. It was only another step to empanel it, and to make it contribute, like an avowed fylfot, to a general scheme of solar symbolism, as may be seen

in examples from London and Pompeii,* and in all these cases, the feet of the symbol rest on the empanelling, Illustration IV., figs. 2, 3.

It is not going too far, then, to say that the fylfot exists in a cryptic form on the Dorchester pavement, Illustration III., fig. 3.

In what parts of Europe was the fylfot in favour at the time of Hadrian? In Greece and Spain, in the north of Italy, among the Celts and Gauls and Germans; with all the peoples, in fact, who were brought hither to garrison Britain. In the Belgo-Roman cemetery of Juslenville, it is carved on memorial stones, in association with the lotus. But though it occurs on a medal of Alexander Severus, it is remarkable that in Rome itself it is not to be seen on any monument prior to the fourth century of this era; and the only tombstone outside the catacombs on which a fylfot appears is that of a Syrian. Was it then a cisalpine, or was it rather an alien taste that was considered by the makers of these Britanno-Roman mosaics?

Let us take another point in the argument. Fretted fylfots occur on pre-Christian Cretan coins, and *in their centre* is placed sometimes a lunar crescent, and sometimes that rosette which represents the solar disc.† Illustration I., fig. 3.

We have already noticed a normal curvilinear fylfot in the mosaic at Newton St. Loe. In a neighbouring panel of the same pavement, Illustration I., fig. 1, is a fylfot of the fretted but free type: its feet are not in contact with the panelling: and its centre is occupied by what we must take to be the sun, although it is quadrangular as befits a fret; whilst a tetraskеле at Caerwent, Illustration V., fig. 1, has a solar disc for its centre and a solar glory for its circumference.

But now another symbol must be noticed as occupying the centre of a fylfot.

The axis of the normal curvilinear swastika at Newton St. Loe, Illustration I., fig. 2, where Apollo adorns the mosaic, and at

* Bolton's *Mosaic Pavings*, Pl. v., viii.

† D'Alviella, *Migration of Symbols*, pp. 57, 150.

Lincoln, at Silchester, and even in Algeria, presents the twin interlaced ovals that we see on the Dorchester pavement, Illustration VI., fig. 1.

It is obvious that these two ovals are intertwined so as to form a cross of equal limbs, which is a sign of the sun. A convenient name for it will be the solar duplex. Its precise significance belongs to those arcana of a solar cult that have yet to be discovered. But we get light from Egypt, from the orientation of the chief temples of Karnak to the solstices or the equinoxes, and from the adoration of Ra. "O Prince," was the invocation, "O Ra, with thy two eyes, lord of the two horizons, may we see thy face again, for we love the circuits of the two Regions.*

The solar-duplex, then, which occurs on a mosaic at Pompeii, † which is found in Africa and the north of Europe, and which abounds on Britanno-Roman pavements, represents the sun's path across the heavens and through the underworld at the winter and summer solstices. And strange to say it has been met with on a shell gorget, in the prehistoric grave-mounds of Tennessee, together with a multitude of other forms of the solar cross, ‡ Illustration I., fig. 4.

The four protuberances of the symbol gave it a cruciform character that was recognised by the early Christians of Europe, and they sculptured it on their crosses and in their churches. For that which was the sign of a solar god could be used quite as well to designate the Sun of Righteousness. And, in addition, the double interlacement could signify Christ's two inseparable natures, the human and the divine. In like manner the three protuberances in the knot of a single unbroken strand, the triquetra, the symbol of a pagan triad, stood also for triunion in the Christian Trinity. Examples may be seen on a cross at Disley, Cheshire, Illustration VII., and on a stone from the old church at Dover of the IV. or V. century.

* Arch. lii. 408 (viii. 9).

† Bolton's *Mosaic Pavings*, Pl. i.

‡ Holmes, Bureau of Eth., 1880—1881, Pl. lii., p. 270.

Another of the shell gorgets of Tennessee demands consideration.* It represents a solar cross upon a solar disc within an eight-rayed solar glory and surrounded by the solar path which indicates the four points of the sun's rising and setting at the summer and winter solstices, Illustration V., fig. 2. And outside all, arranged so as to form a fylfot, but a sign according to some writers† of the Four Winds of Heaven, are four heads of a bird that in Mr. Holmes' opinion resembles the ivory-billed woodpecker. In other lands, other birds were sacred to the Sun. The hawk, for example, and the goose. In Asia Minor the cock, as herald of the dawn, is often placed beside the triskele, and was made sacred to Helios, by the Greeks.‡ On the Brading pavement is represented a man with a cock's head and feet.

The solar simplex formed of a single oval, turned upon itself so as to resemble the figure 8, occurs at Pompeii, and on many European mosaics, as well as on early Christian crosses in this country. It is the simplest indication of the sun's diurno-nocturnal path.

A solar cross, constructed of an ordinary cable pattern, is a common device. There is one on the Lincoln mosaic, Illustration I., fig. 6, and in each of the angles formed by its limbs, is placed a solar duplex. Even this conjunction passed into Christian art. In the church of San Pietro, at Villanova, of the VIII. cent. is a precisely similar Latin cross, and at either end of its lateral limbs is a double interlacement, Illustration VIII.

The solar duplex fills, as we have seen, an important panel of the Dorchester pavement, Illustration VI., fig. 1; and it may be noticed now, that it is surrounded by a solar glory of lotus elements that are a little conventionalised. The Egyptian hieroglyph for this "glory" is a semi-circular figure formed of

* Holmes, *op. cit.*, Pl. lix., p. 248.

† Pictographs of Algonquins, cited by Stolpe, *Amerikansk ornamentik*, p. 28.

‡ D'Alviella, *op. cit.*, p. 180.

half a disc, and four concentric bands of blue, green, and red, and a fifth band marked with radiating lines.* In art these rays are sometimes floral. In a mural decoration of the Temple of Isis at Pompeii, the sun's face is encircled by an alternation of lotus bud and blossom. This flower was an attribute of Isis; it was, too, a sign of life and fecundity; and above all it was a symbol of the sun, Illustration IX., fig. 1.

With this may be compared a Christian sculpture, of the year 737, from the famous Baptistery at Cividale † which exhibits the solar rosette, Illustration IX., fig. 2, encircled by the solar path and adorned with a glory of lotus rays. This path is composed of two separate meanders twisted together, and resembles that which surrounds a cross on the Lincoln pavement. It ought, however, to be made of a single meander that goes twice round the circle, giving the appearance of two. Such a true *intreccio* encloses the solar duplex on the Caerwent pavement, encircles the solar disc on a spindle-whorl of Troy, and borders a scarab of the XVIth dynasty.‡

A square sun with a fretted solar glory is common in mosaic panels, as at Newton St. Loe. Illustration I., fig. 5. In art the rays of a star are usually five. An eight-rayed star was employed by the Assyrians, B.C. 840, to denote the sun. Similar devices were cut, as Mithraic signs, on Gnostic gems, and they entered, at last, into Christian symbolism. The eight solar rays having betokened a restoration of life, the octagon acquired a like significance, and the number eight became a sign of Regeneration.

The badges of the Roman legions are given in the *Notitia Dignitatum*. They consist, in almost every instance, of a solar cognisance, of a disc sometimes plain, sometimes rotate, sometimes eight-rayed, and often in conjunction with the lunar crescent. There is hardly a solar rosette on mosaic pavements

* Sixth Mem., Arch. Survey of Egypt, p. 30.

† Cattaneo, *Arch. in Italy*, Engl. Trans., p. 106.

‡ Schliemann's *Ilios*, fig. 1847. † Flinders Petrie's *Scarabs*, Pl. 25, fig. 716.

that cannot be matched in these ensigns. Illustration XII. shows only a dozen out of many scores. The eight streamers that issue from the limb of a circle two feet in diameter on the Isurium pavement indicate, not a star, but the solar disc, with a radial glory closely resembling that on the Tennessee gorget.

The Lotus, ultimately transformed by Christians into a lily and made an attribute of the Blessed Virgin, was a sacred symbol that had pervaded the whole of Egyptian art for 6,000 years. It had spread with a religious impulsion into many lands, where it was adopted with lessening sanctity as an ornamental motif, and where it underwent by degrees a number of metamorphoses. Some of these, it is necessary to examine.

At the outset we may glance at those ordinary presentments of the lotus that adorn the walls of Egyptian tombs. We can distinguish bud, blossom, disc, and leaves, Illustration X., figs. 3, 4. Subsequent changes have not greatly obscured the bud. The disc, which Mr. Goodyear regards as the upper surface of the seed-vessel, grew increasingly like a rosette, and in an especial manner came to stand for the sun. The curled tip of the leaf originated a striking motif, common enough on mosaic pavements, and often seen on legionary stones to which it was transferred from legionary ensigns. In those of the Batavi, of the Marcomanni, and others, we find a curious zoomorphic development; but they are lotus derivatives, nevertheless, and had a solar association. In its simpler form the curled leaf appears at Pompeii,* at Corinium, at Lincoln, Illustration X., fig. 5, and, somewhat disguised, at Silchester, fig. 6.

We have already seen that the flower in profile is used to construct a solar glory, Illustration IX., but its petals, in full face, may be employed for the same purpose, as in the Dorchester pavement, where the solar duplex is irradant, Illustration VI., fig. 1.

A careful study of Cyprian vases is needful in order to understand the metamorphoses of the blossom into squares and

* Bolton, *Op. Cit.*, Pl. ix.

triangles. Its first stage is shown in* Illustration XIII. A. The flower is easily recognised, but the outlines of its parts are becoming rectilinear. At the same time the calyx is curling over, on its way to the formation of a curious motif that does not now concern us. An intermediate stage is seen on the neck of an amphora,† Illustration XIII. B. A designer has come in, and has constructed a pattern for textiles. He makes the lines of the flower simple, straight, and symmetrical. Next, he repeats this element. Then, he adds an inversion so that a central square is produced, as well as two lateral half squares which are all dealt with, and filled in like so many calyces. Lastly, he empanels the whole, and his pattern is complete. But the lotus has now become cryptic in a multitude of squares and triangles. A still further stage of metamorphosis is witnessed in ‡ Illustration XIV., fig. 1., which represents a detail on the neck of another Ormidian vase. But below the cryptic flower, on the vessel's body, is a band of buds and blossoms realistically treated, as if to show that the tradition of the lotus is continued through all changes.



It is continued also, though perhaps sub-consciously, on the Dorchester pavement, where an amphora has on its neck a decoration of squares, and is supported on either side by a row of large triangles, Illustration XIV., fig. 2. The amphoræ of Silchester and of Frampton have similar supports.

The vase as a sign of fecundity is also, by the fact itself, a solar symbol. If Earth is the teeming Mother, the Sun is the divine Father. The beneficence of nature was acknowledged at curative springs by placing there a sculptured goddess who held

* Perrot and Chipiez, *Art in Phœnicia and Cyprus* ii., 306.

† Ibid. ii., 308.

‡ Perrot et Chipiez, *Op. Cit.* ii., 297.

an urn from which the healing water flowed. From an elegant fluted vase, on a London pavement,* Illustration X., fig. 1., flowers are issuing, and we should not doubt that a detail of the Dorchester pavement, fig. 2, is a highly conventionalised treatment of the same motif. From an æsthetic standpoint, the large amphora would have been spoilt by any floral contact. But the flowers that would otherwise have issued from its mouth have been transferred, with an artist's licence, to a neighbouring field.

This vessel is shown, Illustration XIV., fig. 2, together with an amphora from a sculptured marble sepulchre that was found in the Etruscan cemetery of Perugia, fig. 3. It belonged to the Velemnas family who had Romanised their name into Volumnius. The inurnments ranged from B.C. 200 to B.C. 48, and this was the latest.† It has a gadrooned body and scrolled handles. But be it noted that birds are feeding from its interior. A closely similar amphora, known as the "Vase of the Doves," appears in the mosaic at the Capitoline Museum, Rome.

There is an amphora, too, at the base of the cross of the VIII. century already noticed, Illustration VIII., but the birds that find food in it are peacocks. In Christian art the peacock denotes a glorified human being; whilst the vase on the one hand, and the decussated disc on the other, represent the Eucharistic Species. A peacock feeding from an urn may be seen on the Brading mosaic; and in the cathedral at Pola, of the VI. century, vine branches issue from a vase, and Christ's monogram is placed between two of these birds.

Another sign must be dealt with. It is the last, and the least understood. By those who have followed and who have yielded any assent to previous arguments, it will be looked upon, in advance, as a solar symbol. It is an intreccio, but a false one, for it is composed of more than one strand. It is, in fact, an interlacement of four ovals, Illustration VI., fig. 2. A similar

* Arch. xxxvi., 204.

† *Art Journal*, 1882, p. 21. Dennis' *Cities and Cemeteries of Etruria* ii., 437.

design occurs on the pavement at Caerwent. It will be convenient to call it the solar quadruplex. But what evidence is there that it represented the four-fold path, the solstitial and equinoxial courses of the sun both across the heavens and through the underworld? The subterranean passage of Ra was to the Egyptians a matter of supreme importance. The soul of Osiris, the soul, that is, of every man who was beloved as Osiris was adored by Isis and Nephthys, had to undertake this perilous journey, safely perhaps if only he could sail in Ra's barge, aid Ra in his dark struggle with fiends and serpents all through the twelve dreadful caverns, and emerge with him at last into the gladness of another life. Would any scheme of a solar cult be complete without a symbol of this? "O beautiful youth," said the widowed ones, "come back to thy temple, for we see thee not. The cycle of the gods goes round thee as thou makest thy circuit, and they repulse the fiends for thee. O great one, Osiris, the path which thou followest cannot be told. Hail! son of Ra, who sittest in the barge of millions of years, come to thy hidden places." And the beloved soul, provided with magical formularies, exclaims as he enters the darkness, "I go through the tunnels of Ra. I know the meaning of things. By them I repulse the fiend. I see the mysteries; I rise as a King; I do not die in the underworld." If the solar quadruplex had any significance of this kind, it is a symbol of the restoration of life, and would be eagerly adopted by Christians. We find it, indeed, on many early crosses, one of which, from Durham, is shown in Illustration XV.

It is remarkable that the three Great Sacrifices which the Emperor celebrates as head of the Chinese religions, take place respectively at the solar solstices and the vernal equinox. The autumnal equinox is ignored. At Corinium is an example of a solar triplex, an interlacement of three ovals. It is surrounded by curled lotus leaves, and the artist, in order to increase its visual complexity, has, at intervals, changed the line of colour from one side of the strands to the other, Illustration XI. This method has been followed in the Dorchester intreccio.

The beginnings of all knowledge have come to us either from Greece or through Grecian channels. The Greeks were the fathers of philosophy; their art is unsurpassed; their mathematicians were employed by the Romans whose roads were often constructed by Greek engineers. It has been well said that even "Christianity made its appearance as a Greek religion. Our whole ecclesiastical nomenclature is Greek, with such words as bishop, deacon, baptism, eucharist; and in the Greek tongue were written our sacred books."

Two theatrical mosaics found at Pompeii are signed by Dioscorides of Samos. In Britain, Greek inscriptions occur on altars and memorial stones, and on the Isurium mosaic; whilst corresponding inscriptions in Latin are often corrupt. Three of the four men whose names have come down to us as private miners at Lutudarum, in Derbyshire, have Greek cognomina, Abascantus, Protus, and Trophimus, the fourth being Verecundus.*

Did Greek artists design British pavements to please Roman and barbaric patrons?

II.—We now pass on to consider other intrecci. They differ in type and in origin. 1. There is that which is merely a decoration, the skeuomorph of wickerwork or basketry. It existed in Egypt, Assyria, and Mycenæ. It borders the ancient Tarsus seal, B.C. 2000, Illustration XVII. It runs riot in the cables and braids of Roman pavements. On the Frampton mosaic, Illustration XVIII., a complex is constructed of an unbroken fibre, and is laid out like a mat for the amphora, as it were, to stand on. It may be seen, as a similar interlacement, on a parapet in the church of San Clementi, Rome, of the VI. cent., which Cattaneo† describes as perforated woven work like matting, and which Leader Scott calls a piece of basket-work in stone.

* Haverfield, *Proc. Soc. Antiq.*, xv., 189.

† *Op. cit.*, p. 40.

† *The Cathedral Builders*, p. 9.

But the strand of which the Christian example is composed has both a beginning and an end, and therefore cannot, as Mr. Barnes thinks it does, represent Eternity.

This decorative interlacement, in highly intricate patterns, occurs in the early churches of Armenia and Wallachia.*

It adorns the coped lid of a stone coffin at Bakewell, of the IX. cent., Illustration XIX. ; and forms a sort of raiment which clothes human figures on a cross at Checkley, Staffordshire, leading Bishop Browne to suggest that crosses constructed of wicker-work may have originated such a design.†

Indeed, the shafts of many crosses were covered with it, and in "the Holy Rood," Caedmon's great poem, mention seems to be made of it.

Ic gesawe
syllicre treow
on lyft laedan
leóhte bewunden
begoten mid golde ;

Saw I
a rare tree,
rising on high
wrapt in light
as though covered with gold.

Gimmas stóden (fægere) feowere,
aet foldan sceatum,
Swylce ðaér fife waeron
uppe on ðám eazlespanne.

Four gemstones were placed
at the corners of the socket
and five too, there were
on the shoulder-yoke.

Geseah ic
wuldres tréow
wædum geworðode,
wynnum scinan.

Saw I
this wondrous tree,
decked with raiment
winsomely bright.

Wædum geworðode means 'Adorned with weeds,' or clothing. This word survives in the expression "widows' weeds." It is from a root WAD to bind, and is allied to "wattle," a hurdle.

It was of interlacements that were simply ornamental that the poet spoke. But there were others of a different kind.

2. Zoomorphic intrecci illustrated legends of divine powers and of magical compulsion. A stone discovered in the church-

* Fergusson's *Architecture*, I, 477, 478, 495. He calls it "basket-pattern."

† Arch. L. 287.

yard at Gosforth has upon it a sculpture represented in Illustration XVI. It sets out a well-known pagan story, how Thor, the Defender of Man and the Serpent's Destroyer, "Orms ein-bani," went fishing with the giant Hymi.* And Thor rowed out so far from land that Hymi said it was perilous there because of Midgarð's Orm, the great snake that lay in the deeps and encircled the whole earth, the bane of seafarers. And then, while Hymi began fishing for whales, Thor fastened to his own hook an ox's head. And the Great Worm itself, the enemy of the gods, gulped down the bait and was drawn up to the gunwale. And Thor with his hammer smote the head of the venom-streaked serpent, who struggled so furiously that Hymi, filled with fear, severed the line with his axe, and the snake, the Wolf's twin brother, fell back into the sea.

Above the head of the god, we see an intreccio. It is the reptile-contortions that signify the defeat of earth's and heaven's foe. A custom grew up among the pagans of the north, when they raised a stone of commemoration, to carve upon it Thor's head, or Thor's hammer, and to engrave runes upon the sculptured body of the dying dragon. Thor was mightier to save than the powers of evil to destroy. The inscription on the memorial monolith, 10 feet high, found at Stenqvista, Sweden, Illustration XXI. merely says "Helki and Fraufair & Thorkaut raised these seven stones to Thiuthmunt their father."

3. There are some intrecci in early Syriac churches that suggest a zoomorphic origin; and the legend that would account for them may be discerned in a highly-wrought allegory, the Hymn of the Soul, written by Bardaisan, of Mesopotamia, the great Gnostic theologian of the end of the II. cent.

"While yet a child and dwelling in my Father's House,
Brought up in luxury and well content therewith,
Out of the East, our Home, my Parents sent me forth.

* Corpus Boreale, Hymis Kvida.

“ And thus they promised me and wrote it in my heart ;
 ‘ If thou go down to Egypt and bring thence the Pearl,
 ‘ That which the hissing Serpent guardeth in the Sea
 ‘ Then, with thy Brother in our Realm, thou shalt be Heir.’

“ Straight to the Serpent I advanced and near him dwelt,
 The cruel hissing Serpent I began to charm
 And lulling him to slumber, seized the Pearl.”

4. Another dracontine intreccio indicates the death of the earth-serpent Fafni. We may see the story told on a stone discovered at Ramsundsberg, on the Mäler Lake, Sweden. It is shown in Illustration XXII.

Fafni guarded a hoard of gold, and Sigurd, his destroyer, dug a pit beneath the dragon's trail, between the treasure-heap and a stream. And as the Serpent passed by, Sigurd thrust him through with his sword. Then Regin, the dwarf smith, who was Fafni's brother, cut open his breast and drank the blood, and desired Sigurd to toast the heart. And Sigurd, toasting it on a spit, burnt his thumb and put it to his mouth, and so, tasting dragon's blood, he suddenly understood the voice of the birds that were talking together on a tree. And they said it would be wise of Sigurd to make Regin shorter by the head, that all the treasure might be his. And so Regin was slain.

No story was more popular than this. Everywhere, even, at last, in Christian churches, the Fafni contortions were carved, the intreccio that signified the overthrow of evil. Among pagans we see it on Gotland circular brooches of bronze ; in a tomb-carving at Maeshowe ; and on the hilt of Saxon swords.

Among Christians, we see it on church portals in Norway, and on a cross in Halton graveyard, Lancaster, which presents many details of this altogether heathen story, including the dragon's death-knot.

None of these carvings is pre-Roman ; but what they relate discloses a primitive state of society, and must have come down from a remote antiquity. There is nothing like it in Roman legends, and intrecci of this kind never came from Italy. On the other hand, Egyptian influence, spreading through eastern

Europe to the North, strongly reinforced this legendary art, and helped to carry it, with a hardly changed significance, into Christian symbolism.

5. The next intreccio to be examined is connected with an animal engaged either in seizing other animals, or in biting its own body, and generally its own tail. A common representation is of a serpent with tail in mouth. We may see it in a Saxon earring from Norfolk, which closely resembles what has been found in Egypt of the Rameside period ; in a Saxon gold ring, from Sussex ; and in a carving on a Saxon tomb at Bedale Church, Yorkshire. This has been described as "two serpents interwoven biting their tails," but it would be more correct to say that each is biting its own tail. In Illustration XIX., is represented a sculpture described by Boutell* as "Knotwork and monsters half animal, half vegetable." A carving of the same class appears on the Durham Cross, Illustration XV., and another on a tympanum at Penmon Priory, Anglesey. How are these and all others like them to be explained ?

It will be said, at once, that the coiled serpent of Egyptian type, tail in mouth, represents Eternity. For the following reasons, however, this cannot be :—(a.) A mere symbol of Eternity, of endless time, is the last thing a man in those days, or in any days, would carve on a tomb. What he chiefly desired was to escape as soon as possible from the underworld, and to obtain an ultimate restoration of life. (b.) The interlacement often consists of two or three serpents ; or the tail-biting animal is a quadruped ; or, instead of the tail, it is biting its own or another's body. (c.) Horapollon relates that when the ancient Egyptians would represent past Eternity they delineate a serpent with its tail covered by the rest of its body, which they call οὐραῖον, the Greeks βασιλίσκον, and its image in gold is placed on the head of the gods.† (d.) The Egyptians had two ways of writing eternity,

* *Christian Monuments*, pp. 11, 12.

† Corey's trans., p. 6. Horapollon's work on hieroglyphics is of the V. cent. A.D. Paul Pierret says : Le sens des hiéroglyphes y est généralement bien saisi.

and they both occur in a single sentence of the Book of the Dead, chap. lxii. "I am heir of eternity; to me hath been given everlastingness." The expressions differ.

In one, the solar disc is the determinative, and in the other, the sign for the Delta, or land without horizon. Moreover, the snake's attitude in the latter expression is not that of a circle, tail in mouth, but it rather confirms Horapollo's description, though the reptile is more like an asp than a uræus.

We must look elsewhere for an explanation. It is to be found in the practice of magic, as revealed in the Book of the Overthrowing of Apep. This was a sort of litany which was recited in the temple of Amon Ra every day. The papyrus roll which contains it was written B.C. 305, but the work itself is much more ancient.

Apep was the Sun God's greatest foe in the underworld. It is natural that the Book of the Dead should fully describe the monster. He dwelt on a mountain and was 500 cubits in length. The determinative attached to his name is a snake in five undulations, with a sword stuck in each of them.* On the Sarcophagus of Oimenepthah† his folds are intricate. Nothing but his overthrow could bring a restoration of life to the dying soul.

"Praise to Ra," we read in the litany, "the great god in his disc, who destroyeth Apep in the underworld. O ye gods of the south, north, west, and east, tie and fetter Apep; set fetters round about him. Ye starry deities of Orion fetter him; and ye who dwell in the decans fetter him. The Great Bear of the Northern Heavens, cast him down. O ye fetherers, fetter ye, fetter ye Apep, that enemy of Ra. Horus who dwelleth unseen cries 'Tie him up, slay him with your swords, with sacred knives of flint.' Apep shall be overthrown on sea, on land, and among the stars."

* It is remarkable that the name of the fourth Mexican monarch was Itzcoatl, or "knife-snake," represented by a number of obsidian knives stuck in a serpent's back.

† B.C. 1147.

The unhappy soul, terrified at the prospect of this encounter, was to be succoured by magical arts. Inscriptions were to be traced on fresh papyrus, and wax figures of Apep were to be wrapped in it and cast upon the ground and into the fire. Make the figure of a serpent, runs the instruction, having its tail in its mouth, and a knife stuck in its back. Cast it upon the ground and say, Apep the Fiend. Make a second serpent with the face of a cat; make two more serpents with other bestial faces. Tie each one up and fetter it, and cast it upon the ground, saying "O Apep, enemy of Ra, get thee back, down with thy head even to the dust. May thy tail be placed in thine own mouth; mayest thou bite into thine own skin. Apep, the Fiend, be fettered!"

Such thaumaturgy may, perhaps, be recognised in the coils of the serpent that protects the canopy over Ra, in his barge; and, tail in mouth, surrounded the solar disc which is the sign of Ra, in his passage through the underworld.* Magical arts that long ago came hither from the East are still followed in the towns and villages of England by persons who, nevertheless, go to church and listen to sermons that are sometimes scientific. What may not have been practised when even priests believed that Christ, the Sun of Righteousness, descended into hell and waged war against his great foe, the evil one, in the underworld, where the soul, exposed to unknown dangers, must wait until the resurrection? So spells were wrought against heaven's enemy, and they were endowed with a certain permanence by being made of metal or carved on stone. The two serpents on the Bedale tomb, with tail in mouth, are entangled in their death throes. The like may be seen displayed on the porch at Monkwearmouth. Elsewhere Christ, the divine Stag, is trampling upon contorted reptiles. The feet of the monsters on the Bakewell coffin are fettered, and each is biting his own body. Toils, also, are spread for the feet of the beast at Penmon

* Sarcophagus of Oimeneptha, Plates 4, 5.

Priory, whose tail is in his mouth, whilst the mortal writhings of a serpent are seen above.*

These are but samples of Saxon and Norman sculpture, of similar intention, scattered through the kingdom. Mural paintings of a later period which illustrate the "Harrowing of Hell," show a fiend in human form, bound with cords or chains, according to the Book of Revelation, xx., 2. The universal theme is the overthrow of Apep, of the old dragon which is the Devil and Satan.

Perhaps this is the place to notice the lacertine interlacements to be found in early † Irish, Saxon, Carlovingian, and Lombardic MSS. They are later than much of the ruder work in metal and stone; and Miss Stokes truly remarks that "the scribe of the VII. cent. in his illuminated page represents the graceful designs of the pre-Christian artist in bronze and gold." The pen is a more facile instrument than the chisel. The cloistered monk was less exposed to undercurrents of pagan thought than his masonic brother. It was the latter's business to excite the imagination and enlist the sympathy of the common half-heathen people. But the anchorite, setting loose his own fancy, wrought his wondrous intrecci to embellish a copy of the Gospels that a monastic reliquary was to enshrine. In his delightful task he augmented, to the highest degree, the intricacy of his decoration. But beneath it all, we recognise the bitings and writhings of monsters that the Christ of the Gospels came to destroy.

6. The next intreccio to be noticed is the magic knot. Knitting knots as a means of witchcraft is still practised in Britain. The bonds are tied either for evil or for good, and that the spell may be undone, the knot must be loosed. Knots were made of the branches of trees; of the birch and the

* Romilly Allen's *Christian Symbolism*, p. 386.

† Lindisfarne Gospels, A.D. 698-721. Gospels of MacRegol, 820. Those of Durrow, 879-916. Of MacDurnan, 891-925. Book of Kells, "before 1000." Psalter of Ricemarch, 1089-1096.

willow. Woden, the Reader of Mystic Runes, declares "I know a chant whereby, if a man hurts me by spells of the withy, the curse shall seize him and not me."*

Sigurd boasts against Eystein "I went all the way to Jordan, and swam across the river, and there I twisted a knot of willows which is waiting there for thee. For this knot, I said, thou shouldst untie, or take the curse that is bound up in it."

And there were love-knots, too, and bonds of fidelity. But knots knitted in stone, tied by the sculptor's hand, could not well be undone. We may see them on a Roman altar of the Galli, from Northumberland; in a rock-sculpture of Scotland; on a stone coffin from Cambridge Castle; and on Disley Cross, Illustration VII.

Perhaps the latter examples indicate the bond that unites the soul and the Redeemer.

7. Lastly there are phyllomorphic intrecci, or those which have arisen from a decorative treatment of sacred trees. Assyrian art had made them rigid and symmetrical. In a paper read to this club two years ago, reference was made to the Arbor Pereclixon, that grew amidst water-streams. It was a Mesopotamian conception. Its fruit furnished food, the branches gave shelter, the shade brought sleep. But, together with the doves that sought its boughs, it was especially a charm against the cruel dragon.† Such a tree seems to be intended by a sculpture at Ferrara, of the VIII. cent.‡ Doves and peacocks, resting on the angular and ungraceful branches, are secure from wild beasts below and from serpents above. The advance of Christian art developed this into the vineal intreccio shown in Illustration XX.

Mr. Barnes maintains, in his chapter of Leader Scott's book *The Cathedral Builders*, that all the intrecci of this country were

* *Háva Mál*, Corpus Boreale.

† Arborem quoque Pereclixon incolere, ejus fructu refici, umbra requiescere, ramis protegi, dicunt et a crudeli dracone tueri. Istiusmodi physici de columba docent. Vita B. Columbæ Reatinæ v., 323.

‡ Cattaneo, *Op. Cit.*, p. 132.

brought hither by Italians, and more particularly that all the intrecci on our Christian monuments were the work of the Comacine Guild. It will already have become clear that this was not the case; that there was a strong and independent evolution of interlacing designs in the North of Europe. Indeed it may well have been that lacertine decoration spread from the North into Italy. In the III. and IV. centuries B.C. there was a colony of Gauls on the Adriatic, and in their cemetery have been discovered, as Leader Scott herself relates, serpent ornaments connected with a religious cult.

Attention has been drawn to a cross, or rather to portions of one, that was disinterred from the church of SS. Cosmas and Damian, Rome; and notwithstanding that Cattaneo, p. 190, assigns it to the IX. cent. it has been claimed as the origin of what is called the Irish Cross.

It is represented in Illustration XXIII., and it may be seen that it bears no resemblance whatever to any ancient cross in Ireland, Cornwall, or Wales. In a small panel at the base of the lower limb is a twisted withy band or magic knot, common throughout Europe. Above it is a Byzantine decoration not to be matched on any early cross in these islands; whilst the intreccio on the upper limb, suggesting as it does the Egyptian Apep, and occurring on Assyrian cylinders, is equally foreign.

There can be no doubt that Augustine and Paulinus and other missionaries brought masons with them, who may have been Italians, though Bede expressly states that Benedict Biscop's masons were Gauls. It is also certain that their object was to introduce the basilican form of church and the Roman manner of construction.

But as regards decoration, there is no evidence of an exclusive Italian style.

The Comacine Guild was a receptive school of builders. Greek, Byzantine, and Saracenic art had reached them; they were doubtless acquainted with the intrecci of Georgian and

Syriac churches ; and afterwards, in Sicily, they absorbed much from the Normans.

The Italian interlacements that most resemble our own are in the churches of S. Ambrogio, Milan, and of S. Prassede, Rome, both of the IX. cent. It was during the dynasty of the Lombard Kings, which began in 568 and lasted 200 years, that such intrecci attained their greatest vogue in Italy. It is well, therefore, to consider who these men were who made themselves masters of that country, and whose dependants the Comacine Guild became ? Who were those princes who took with them their guards and their court, and the decorated arms and equipment of wealth and fashion ?

Gibbon suggests that the Lombard Kings were Scandinavians ; but Latham points out that the names of the first four of them were Anglo-Saxon : Edwin, Elfwin, Clapa, and Edgar : and recalls that in the Anglo-Saxon *Traveller's Song* Ælfwine and Eadwine are given as the royal names for Lombardy.

Spylee ic paes on Eatule
Mid Ælfpine
Se haefde mon-cynnes
heortan unhnæapeste
hringa gedales
beorhtan beaga,
bearn Eádpines *

Also I was in Italy
with Elfwin
who had, of all mankind,
the amplest heart
in the giving of rings,
of bright bracelets,
this child of Edwin.

The argument is capable of much extension, did time permit. It is only possible to adduce, in conclusion, three cogent facts. 1. Early Irish churches differ from Italian churches of the Lombard style in many particulars. They are diminutive in size and are not basilican in form. The sanctuaries have square ends and not a rounded apse. The jambs of the doors incline towards each other at the top ; and there is no example of an open arcade. 2. Early English churches were enriched by baluster shafts of stone, turned on the lathe, instead of by short Roman columns. These balusters have been found at Dover, at Worth

* *Scald's Tale*, Codex. Exon., Thorpe, p. 322.

in Sussex, at St. Albans, at Earl's Barton and Brixworth in Northamptonshire, at Barton-on-Humber, and at Jarrow and Monkwearmouth. There is nothing like this use of them in the churches of Italy. 3. The Comacine sculptors, following a habit of old Rome, were above all things fond of representing the peacock; but they made it, as was done in the catacombs, an emblem of the redeemed. An example from S. Pietro, Villanova, is shown in Illustration VIII. If only Italian conceptions had been wrought here, and only Italian traditions obeyed, peacocks would have covered the carved stones of Saxon times. But where are these Imperial birds?

It is certainly possible to show two, on a stone from Rous Lench in Worcestershire, Illustration XX., discovered last year built into the church's wall. Bishop Browne calls the sculpture unique. It is certainly of great rarity. The full influence of Italian art is displayed upon it, though no Italian was the artist. We are permitted to see Christ as the True Vine, sickle in hand, raising aloft a cluster of grapes of which two peacocks are tasting. They are souls drinking new wine in the Father's Kingdom. The tree is full of tendrils and fruit, and forms a wide-spreading intreccio, which, like the Arbor pereliction, protects the birds on its boughs from the guile of the serpent. But the serpent is neither biting its own body, nor writhing in the contortions of death.

In fine, the Comacine interlacements have no depth of feeling. They were got at second hand. Symbols that elsewhere had a solar significance, or a zoomorphic meaning, are misunderstood and distorted. Everything is turned into mere decoration. There is no passion of living legend; no emotion of magic. The shafts and columns of Lombard Churches—like Cædmon's cross, wædum geworðode—were clad with intrecci as with a garment, to please a prevailing taste, but in no wise to minister to a fear-stricken soul.





Chalbury Rings and Rimbury.

By H. J. MOULE, M.A.

(Read Sept. 10th, 1900.)



IT should be said first and foremost that this paper is founded largely on the chapter on Chalbury Rings in Warne's "Ancient Dorset," p. 46, and on his description in "Celtic Tumuli," p. 58, of work at Rimbury.

Chalbury Rings is an earthwork very noteworthy for its position—its high, view-commanding position. It is 370ft. above the sea. Its construction is less remarkable. The work is, as is understood, of that sort which

Mr. Cunnington holds to date from early times in the pre-Roman epoch. This is the kind of construction in which no soil is thrown upwards. At Maiden Castle and Poundbury the crests of the valla are made of soil piled up. There is no sign of anything of the kind at Chalbury. There they tried to bother the foeman's storming party by simply paring away the natural slopes round the precinct so as to make them steeper. Seemingly the soil so removed was thrown over the lower slopes, but this is not clear. A remarkable

feature on the north and east is a sort of platform close within the scarp. The natural slope within the precinct is there very sharp. If left unaltered the defenders would have been much hampered by the insecure footing. They would also be greatly exposed to arrows and sling stones from the enemy. So the slope within the precinct was cut into, and a good, wide shelf made, the stuff being here almost certainly tipped down the lower, outside slope.* Across this ledge or terrace two slight but plainly seen banks exist. They look as if they were made for some use—but what use?

Another noteworthy feature is a ledge some way down the very steep eastern slope. It gradually rises towards the south, and seems to have been the road of approach.

Mr. Warne holds that stone was used to form a defence on the top of the scarp of the enclosure. It seems almost certain that this was the case. The absence now of anything in the way of a breast-work makes it very likely indeed that there was one of stone, probably a rough dry wall. Stone abounds at Chalbury. Witness the quarry there, and the outcrops of rock in the precinct. This dry wall, in after ages, when field fences were thought of, would be irresistibly tempting as a quarry. For these fences, the predecessors of the long lines of field-walling close by, all the stones, almost, of the breast-work would inevitably be cleared away. Nay, there is a spot which looks as if the ground there had been a little dug away to an easier slope for slides or sledges to go down with loads of stone.

The lofty situation of Chalbury Rings revives the old puzzle about water supply. A well at such a height, and in a rocky hill is quite out of the question. Close to the south-western foot of Chalbury is the "Boiling Rock," so called. Here there is a strong spring. Indeed for long years it supplied Weymouth. The water was carried through bored wooden pipes. Some years ago one or two of them were lying about on Lodmoor,

* It should be noted that Mr. Cunnington explains the mode of construction differently.

and possibly are there now. This spring doubtless supplied the folks of Chalbury Rings, but in time of siege it must have been hard to come at.

An uncommon, although by no means unique, feature at Chalbury consists of two barrows within the lines, towards the east side. For the most part the Celts, like the Romans, abstained from burying the dead among the dwellings of the living. But the Celts at times broke this rule. In Poundbury Rings, Dorchester, for instance, there is a barrow. One of the much less complete Chalbury barrows was opened by the late Mr. Warne. He found it a hard task, for the barrow is formed "principally of rubble stones of a large size." Two urns were found, both shattered to fragments, with remains of burnt bones. At the bottom of the barrow a large quantity of bones of mice were lying. Such, Mr. Warne says, have been discovered in French barrows, and in Derbyshire barrows Mr. Bateman constantly found rats' bones.

Besides the barrows within Chalbury Rings certain minor disturbances of the surface there should be noticed—"slight shallow depressions and circular banks of earth," as Warne hath it. It must be confessed, however, that to the untrained eye these are not quite convincing as witness to the holding of the site as a place of permanent dwelling.

Standing on Chalbury we can hardly fail to notice the rough, up-and-down surface of part of Loddon, the hill just to the west. These inequalities are marks of quarries. The tradition is that "all t'wull annshent buildens to Darchester were mead out o' Loddon stwun—lovely stwun 'twas, too, come to that."

Lastly we must say a little about what seems to have been part and parcel of Chalbury, not as a place of defence, but as a permanent settlement. Considering the nearness of Chalbury to the Ridgeway barrows, especially the Culliford Tree group, and the five seen against the sky line on Bincombe Hill, the natural idea is that in them or some of them lie the ashes of the headmen of the Chalbury clan. It is possible. It is, however, made less likely than otherwise it would be by the existence of old of

a general burying ground a quarter of a mile from Chalbury Rings. This can hardly be other than the common resting place of its dead. This burying ground, taken with the apparent signs of dwellings in Chalbury Rings, seems to shew that it was a village, not a camp of refuge to be held only during a raid by the enemy. The burying place was on Rimbury, a hill south-east of Chalbury, or rather a spur of the same hill. During the clearing of the top of Rimbury for the plough, the labourers found between thirty and forty urns, which they promptly pelted to bits. The farmer, as soon as he heard of this discovery, stopped the clearing, and told three antiquaries of the find—Mr. Warne, Mr. Hall, and Mr. Medhurst. They made a careful search and found over fifty more urns. Judging by *two specimens in the Dorset Museum, and by Mr. Warne's speaking of the absence of much difference among the urns, they were of the flower-pot shape, with very slight ornament. Most of them were placed mouth uppermost, and each was covered with a thin flat stone. On the under side of one of these stones there was seen a small line corresponding to the rim of the urn below. This stone is in the Dorset Museum, but not the urn belonging to it. It is believed that this circular groove was formed by chemical action set up by decay of the burnt bones in the urn. But why should this happen only in one case, as far as is known? Another curious feature in this burying ground was the existence under the urns of many unburnt skeletons. To Mr. Warne, with his large experience, this appeared "a singular and most interesting peculiarity." Several of the skeletons were in kist vaens, and apparently a good many of the urns in kists. These terms, as used by Warne, are taken both to mean receptacles made of flag-stones, the kist being roughly cubical, the kist-vaen oblong.† Of the former an excellent and quite perfect example was discovered by Mr. Cunnington in a barrow on

* Case xii., 39, 40, 40a.

† The Encyclopædic Dictionary differs, making the kist-vaen consist of six stones only.

Ridgeway some years ago. It consisted of six flags, very neatly put together. Of the oblong kist-vaens, among frequent instances, may be mentioned several, perhaps many, uncovered at Portland. The contents, and an interesting drawing, of one of these are in the Dorset Museum. They are, by the way, very noteworthy, as seeming to show that the burial was that of a Celt in Roman times.

These few rough notes on Chalbury Rings and its burial hill-top should not close without a word of the silent appeal of the place to the imagination. Surely a thought picture, dim and doubtful, but striking, is portrayed when we stand on this impressive spot. Whosoever has in reality heard the Celtic "keen" will likely enough hear it at Chalbury in phantasy. If, that is, he tries to recall to sight the blue-tattoo'd clansmen and women filing down Chalbury and along to Rimbury, over the orange-brown bents, to bury their dead. And what a weird "coronach" floated out, may be, to Weymouth Bay, and startled the crew of Gallic long-ship there riding—and echoed dimly-back landwards from high Ridgeway with its crowded white barrows. Yes, our fancy, as our bodily eyesight, has plenty of scope as we stand on Chalbury Rings.



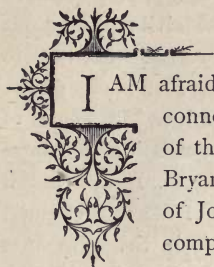


Notes on some Early English Printed Bibles,

WITH ILLUSTRATIONS FROM THE ORIGINALS IN HIS
POSSESSION.

By NELSON M. RICHARDSON, B.A., F.E.S.

(Read Feb. 26th, 1900.)



I AM afraid that Dorset cannot claim any very close connection with any of the printers or translators of the earliest English Bibles, but the fact that Bryanston at one time belonged to the ancestors of John Rogers, to whom we owe the second complete printed English Bible, will furnish an excuse for bringing the subject before the Dorset Field Club.

The history of the early Bibles is so interwoven with the history of the Reformation and with many matters of a religious and semi-religious nature which would be unsuitable for discussion by our Club, that I must necessarily confine myself, as far as possible, to an antiquarian view of the subject, and even on this I can, on account of its extent, make but a few notes. Before I proceed to the English Bibles I would exhibit a fine copy in printed facsimile of the New Testament portion of one of the earliest MSS., in uncial letters, dating from the 5th century, the Codex Alexandrinus, which was presented to Charles I. by the

Patriarch of Constantinople, and is now in the British Museum. It is in Greek and forms one of the first links in the history of all Bibles.

It is stated by Chrysostom that whilst the Romans were still in Britain the British of that day possessed translations from the Scriptures; but the first known translation is in the form of a poem written by Cædmon, at first a cowherd, but afterwards a monk, in the latter part of the 7th century. Other translations by Aldhelm, Bishop of Sherborne (the Psalms), the Venerable Bede, King Alfred, and others, were made and used; but our knowledge of what was done in this way up to the latter part of the 14th century seems to be limited, and, as might be expected from the early dates at which they were written, from the changes of languages, and from the improved translation by Wycliffe which superseded them, comparatively little remains of these early efforts. Yet until Wycliffe's time such efforts seem to have been mostly approved and aided by the civil and religious authorities, though cases of persecution occurred from time to time. Wycliffe finished his translation—the first made of the complete Bible—about the year 1382, and various MS. copies of the 14th and 15th centuries still exist. This translation, like those that preceded it, was made from the Latin Vulgate. Here I exhibit an ancient Latin MS. of the Book of Isaiah of the 13th century, probably the early portion. [Fig. I.] It is in the form of a large octavo volume, $9\frac{3}{4} \times 6\frac{3}{4}$ in., and is in very good condition. The text is the central and largest writing, between the lines of which are glosses or paraphrases of the text; at the sides are notes and explanations. I have also here the first *printed* edition of Wycliffe's New Testament, dated 1731, or 350 years after its completion by its author. Wycliffe's followers, the Lollards, were much persecuted and repressed in England during the 15th century; and in 1408 an order was passed by Convocation to the effect that no man should thereafter by his own authority translate any text of Scripture into English until allowed by the priestly authorities. This is stated by Sir Thomas More to be the reason why Caxton did not print Wycliffe's translation; and

I regret to say that amongst the European nations England can only take a very low place as regards the priority of her first printed Bible in her own language. The first printed book known is the Mazarine or Gutenberg Bible, in Latin, about 1455. The first German complete Bible is dated 1466; Italian, 1471; Low German, 1480; French, 1487; Bohemian, 1488; Dutch (Old Testament only), 1477; English, 1535; Swedish, 1541; Danish, 1550.

It may be assumed, however, that Caxton was quite ready to print the Bible if he dared, as in his "Golden Legend" of 1483 he printed most of the Pentateuch and Gospels, though this fact has been much overlooked, and thus produced the first printed portion of the Bible in the English language. The translation of the 7th verse of Genesis iii. is similar to that in the Genevan version (1560) in regard to the word which is in our version rendered "aprons," but in both of these "breeches," which gives its name to the numerous editions of the Genevan version. The first printed Breeches Bible, though incomplete, may, therefore, be said to have been Caxton's "Golden Legend" of 1483. [Wycliffe's Bible has also this translation, but it was of course in MS.] I exhibit a photograph of this verse from Caxton.

Our next English translator was Tyndale, his first publication being the New Testament in 8vo., supposed to have been printed at Worms about 1526, of which two copies only are now known, which passed through several editions. He also translated the Pentateuch (1530) and one or two other books of the Old Testament; but nearly all were introduced surreptitiously into this country, and many copies were burned, so that all are now very scarce. Tyndale suffered martyrdom at Vilvorde, near Brussels, on Oct. 6, 1536.

It was not until 1535 that the first complete English Bible was printed, the work of translation in connection with it having been until recently believed to have been done entirely by Myles Coverdale. The printing has been ascribed to many different places, but it would appear pretty certain, from evidence which has only of late years been brought to light, that Jacob van

Meteren, a printer of Antwerp, had a great deal to do with the translation as well as Coverdale, and also printed the volume in that city. It is now represented by but a few copies, and all I am able to exhibit to you is a reprint made in 1847 with a facsimile title page. The original was in black letter, and contained wood cuts and a map of Palestine. The Old Testament is practically an original translation, the New being founded chiefly on Tyndale. The title page in the volume I exhibit is dated 1536, this having been inserted in part of the original edition, with the words (Translated) "from the Douche and Latyn" omitted. Coverdale passed through many trials, and with difficulty escaped the fate of Tyndale. He died in 1567 at the age of 81.

The second English Bible [Figs. II., III.] is the one which

the Lord had sayd by II Mose.

¶ The heart of Pharaos is hardened of God.
The grethoppers. The thicke darchnes.



¶

¶ The .x. Chapter.

¶ De Lorde sayde vnto Moles: goo

FIG. II.—The Byble * * * * truly and purely translated into
Englysh by Thomas Matthew. M,D,XXXVII.,

Woodcut from Exodus x. The plague of locusts.
(Full size.)

The.vi.Chapter.



And I saw when the same opened
one of the seals / and I heard one of the
four beasts saye / as it were the noise
of thunder / come and see: and I saw

FIG. III.—Thomas Matthew's Bible, 1537.

Woodcut from Revelation vi. The opening of the first four seals: the four horsemen. (Almost full size: reduced by one-eighteenth.)

bears the name of Thomas Matthew, a pseudonym which was assumed by John Rogers, the martyr, who was the great-great-grandson of Sir Henry Fitz Roger, who held Bryanston about the middle of the 15th century.

Of this Bible I am pleased to be able to exhibit a copy of the original volume, now exceedingly rare. It was published in the year 1537, and is not, as the title page might imply, an entirely fresh translation, being composed of the translation of Tyndale as regards the New Testament, the Pentateuch, and some few other books, the rest being Coverdale's. The whole was then revised and edited, with some alteration, by Rogers, who added numerous notes and explanations. Great exception was taken to these notes, and they were all omitted in the next edition (1539). It will be observed that they have mostly in my copy been erased in ink. This is probably owing to an Act of Parliament in 1543, by which all Bibles containing preambles or annotations were to have them cut or blotted out under a penalty of 40s. each Bible. Summaries of chapters were allowed to remain, as has been the case in this copy, in which also the references are untouched.

Although this Bible was not the first, it was in many ways the most important, as it was the first English Bible published with the Royal Authority, as may be seen on the title page in the words—

“Set forth with the Kinges most gracyous lycēce.”*

It is also the one which, when revised, became the Great Bible of 1539, which in its turn was published in 1568, after further revision, as the Bishop's Bible, the latter being the chief foundation for the present Authorized Version, first published in 1611.

* Two reprints of Coverdale's Bible were published in this year, one of which also bears these words, but Fulke, writing in 1583, states that Matthew's was “the first printed with authority.”

A few words on the history of John Rogers may be added. Born near Birmingham about 1500, he was educated at Pembroke Hall, Cambridge, where he took his B.A. degree in 1525. He was made a junior canon of Christ's, then the Cardinal's College, Oxford, and afterwards held the living of Holy Trinity, London, from 1532-4, when he accepted the chaplaincy of the Company of Merchant Adventurers at Antwerp. He married in 1536 or 1537 Adriana de Weyden, by whom he had eleven children. Little is known of his movements after the publication of his Bible, except that he went shortly afterwards to live at Wittenburg, and returned to England about 1548. He was made Rector of St. Margaret Moyses and Vicar of St. Sepulchre, both in London, in 1550, and Prebend of St. Pancras in St. Paul's Cathedral in 1551. On the 16th of August, 1553, shortly after the accession of Mary, he was summoned to trial and confined, first in his house and afterwards in Newgate. He suffered martyrdom on Feb. 4th, 1555. A full account of his trial, written by himself, is preserved; but for any further particulars I must refer you elsewhere.

In 1539 was printed in Paris and published "The Great Bible," or "Crumwell's Bible," so called on account of its size, and of the leading part taken in its publication by Sir Thomas Crumwell, Henry VIII.'s Prime Minister. Coverdale was employed to edit Matthew's volume, and, shorn of its notes and expressions, which were liable to give offence, it passed through no less than seven editions in three years, the six last under Cranmer's superintendence, and called by his name. Four other Bibles were also published in these three years, including Matthew's in five volumes and three by Taverner, which were Matthew's with slight alterations. But after 1541 comes an interlude, and we meet with no more complete Bibles until 1549, when no less than six appeared, including two Matthew's and three Cranmer's. I have taken no notice of the editions of the New Testament and other portions of Scripture which were published during this period, but in every year since 1525 (except 1541, which produced three complete Bibles, and 1543, which was blank), one

or more of these smaller volumes appeared, chiefly New Testaments, so that the number in circulation must by this time have been very considerable.

In Mary's reign no part of the English Bible seems to have been printed in this country, though a few small portions, including one New Testament, were printed abroad, and doubtless found their way here secretly. This New Testament was printed in 1557 at Geneva, where a large number of English Protestants had collected together, having left England on account of the persecution. The translation was made by William Whittingham, and is remarkable as being the first English Edition of any part of the Bible in which the chapters are divided into verses.

In 1560 was printed at Geneva what is known as the Genevan or "Breeches" Bible, which is not the same translation as Whittingham's New Testament, though he was one of the translators employed in the work, in which he was helped more or less by Myles Coverdale, John Knox, and six others. John Bodley, the father of the founder of the Bodleian Library at Oxford, had much to do with the printing of this and the 1561 edition.

The Breeches Bible was, probably on account of its notes, an extremely popular version, as may be seen by the fact that it passed through no less than 40 editions between 1560 and 1600; sometimes three in a year, and there are said to have been 200 editions of Genevan Bibles and New Testaments issued between 1560 and 1630. It was in fact with some difficulty supplanted by the present Authorized Version, and continued to be issued for many years after the introduction of the latter in 1611—so much so that in 1649 and some subsequent years the Authorized Version was issued with the Genevan notes, to make the people take to it better. I exhibit a quarto edition of 1607 of the Genevan or Breeches Bible, belonging to the Museum. The great number of editions accounts for the abundance of this version compared with, say Matthew's Bible, of which only 1400 copies were printed many years earlier, and probably a great portion of them officially destroyed. The first Bible printed in Scotland

was the Genevan Version, published at Edinburgh in 1579, in folio.

About 1563 Archbishop Parker, feeling the necessity of a better translation than those in use, prepared, with the help of many of the Bishops, and published in 1568, in a fine folio volume, what is known as "The Bishop's Bible." [Figs. IV., V.]



FIG. IV.—The. holie. Bible. 1568. First edition of The Bishops' Bible.

Woodcut from Revelation x., ver. 1, 2. (Half the size of original.)

All the woodcuts have borders of this character.

This was far less popular than the Genevan Version, and had many fewer editions; it was last printed in 1606; but it marks one of the great steps in Bible publication. Besides these two there was nothing of importance until 1611, the final edition of Cranmer's, or the Great Bible, having been brought out in 1569.

I ought, however, to mention the Rheims version of the New Testament made by the English College of Rheims, and published



FIG. V.—The. holie. Bible. 1568. First edition of The Bishops' Bible.

Engraving of The EARL OF LEICESTER at the beginning of the Book of Joshua. His coat of arms is in the first initial A of the Book. (Slightly over half size.) A similar portrait of Lord Burleigh is engraved in the initial B of the first Psalm, and one of Elizabeth on the title page.

in 1582, and the Douai version of the Old Testament, made by the College of Douai, in Flanders, published in 1610. These form the Authorized Roman Catholic English Version of the present day, and were made direct from the Latin Vulgate.

We come now to the year 1611, in which was first printed, in a large folio, our present Authorized Version, of which I exhibit a very fine and perfect copy of the first issue, which goes by the name of "The Great HE Bible," from the passage in Ruth iii., 15, which is in this issue misprinted "and HE went into the city" [Fig. VI.], as may be seen in the copy I exhibit. In the

15 Also he said, Bring the || balle that thou hast vpon thee, and holde it. And when she helde it, he measured sixe measures of barley, and laide it on her : and he went into the citie.

16 And when shee came to her mother in law, she said, Who art thou, my daughter : and she tolde her all that the man had done to her.

17 And she said, These sixe measures of barley gaue he me, for he said to me, Go not emptie vnto thy mother in law.

FIG. VI.—Authorized Version ; First issue, 1611.

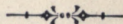
Facsimile of Ruth iii., 15, containing the misprint "he" for "she" in "and he went into the citie," from which this is called the "He Bible." (Full size of original.)

second issue, also dated 1611, the words are "and SHE went into the city." This is therefore called "The Great SHE Bible." Both these renderings occur in subsequent editions for some years. There are also numerous other small differences between

the two 1611 editions. Some of the "He" Bibles have a wood cut first title, as in the present case, and some a copper engraving, of which a facsimile has been inserted in my copy. Besides being the first, it is one of the finest [Fig. VII.] editions of the thousands that have since been issued, and is now very rare. I exhibit two other editions of the Authorized Version—Field's folio edition of 1660, containing also the prayer book, which, as far as I can learn, is not usual, and what is said to be "The smallest Bible ever printed;" size $\frac{11}{16} \times 1\frac{1}{8} \times \frac{3}{8}$ in.; date, 1896. That of Field's is a noted edition on account of its size, printing, and the fine plates which are so thickly interspersed in its pages.

I have found it very difficult to curtail my notes on account of the magnitude of the subject, and I have abstained from any history of the translation of our present Authorized Version, which is of the greatest interest, but very accessible. I might also mention the many Bibles distinguished by curious misprints, such as the "Vinegar Bible" (1717), of which the Club saw, or might have seen, a fine copy at Sir William Marriott's. I feel sure that there must be many other treasures in Dorset in the way of old Bibles, probably in many cases unknown to their owners, if only one knew where to look for them.

There are one or more translations in a modern colloquial style, as proposed by Benjamin Franklin about the year 1780, which were perhaps well intended by their authors, but to my mind sound most objectionable; and there are a series of American Bibles which deserve notice, though hardly on account of their earliness, as no English Bible was printed in America until 1782, though an Indian translation was printed there in 1663, and a German one in 1743. As a final exhibit I have brought a copy of the Revised New Testament of 1881. It seems doubtful, however, if it will come into general use, even as quickly as that of 1611, which is now so firmly fixed in the affections of the English speaking people of the world.



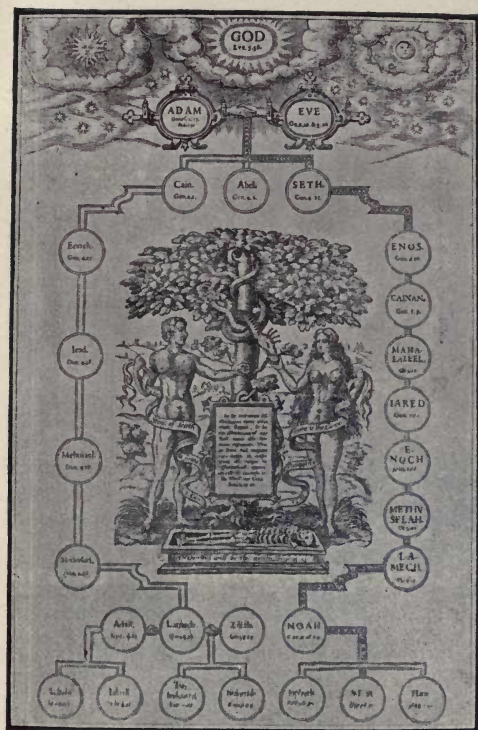


FIG. VII.—Authorized Version ; First issue, 1611.

First page of the Genealogies which occupy 34 pages. (Greatly reduced : size of framing line in original, $13\frac{3}{4} \times 8\frac{1}{2}$ inches.)



Dungeon or Dunset Camp.

By E. CUNNINGTON, Esq.

(Read June 8th, 1900.)



THIS is sometimes called Dunset, a provincialism meaning a small hill, but as the dimensions furnished in our programme of this day says it is 500 yards long and 200 yards broad, I think it must emerge from the small-hill set. It probably has its name of Dungeon from a small tower left in the camp, and the plentiful supply of tiles, stones, and building materials left, justify the idea.

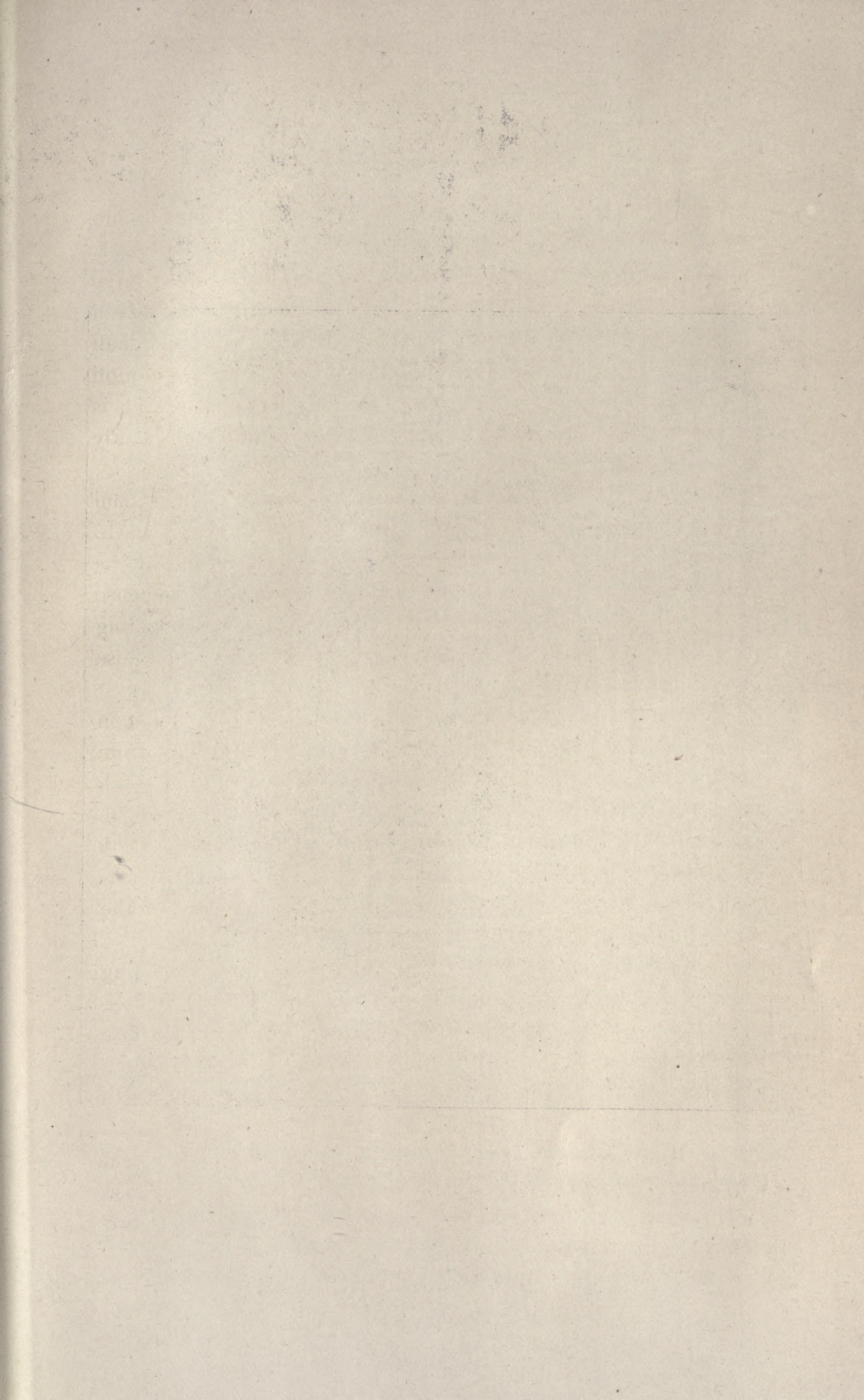
Dungeon is about a mile north of Buckland Newton, and 13 or 14 miles due north of Maiden Castle. On the visit of the Dorset Field Club to this camp in July, 1878, two pieces of a Roman quern were found in one of the valla. In making small researches in 1881 in the vallum, three pieces of Roman pottery were discovered; one, the base of a small well-made drinking cup with fluted sides of the Fordingbridge pottery; the others of black and fine red ware. There are plenty of Roman remains inside the camp, consisting of flanged and other tiles of different makes.

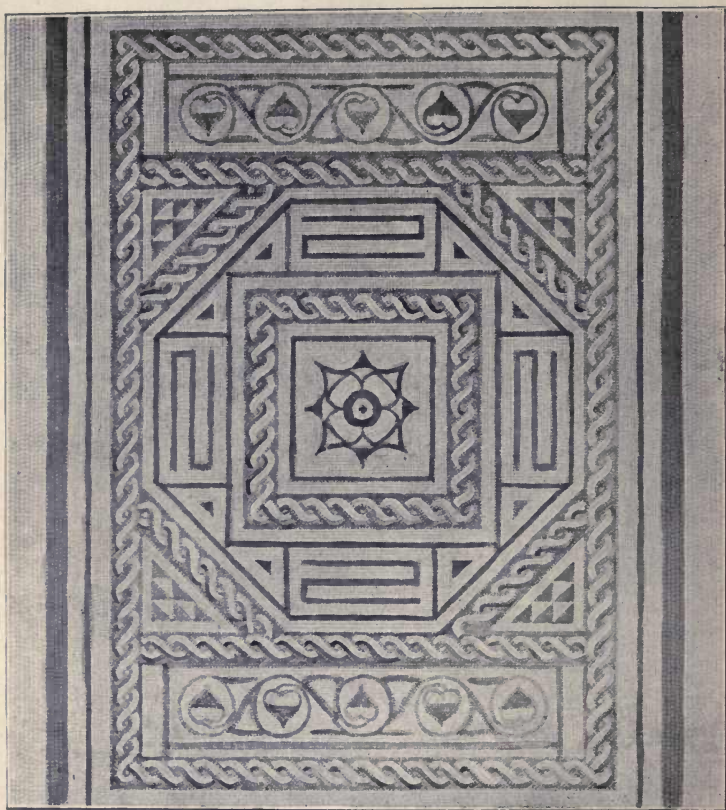
On September 9th, 1881, a further excavation was made into the vallum nearest Castle Hill House. Here more Roman black pottery was found far under the raised materials, and a large quantity of stone brought there from a distance, and seven fragments of Roman querns. One of these was the upper half of a very fine stone with a three-inch well-cut perforation through its centre—a work of no small difficulty, as the stone is of old red sandstone with quartz crystals, and consequently excessively hard.

The shape of this camp is oval, with one ditch. The vallum is raised from the outside, above the level of the camp itself. Its situation is most imposing, commanding the whole of the Blackmore valley; and as a military position it is of immense strength and importance, its main features closely coinciding with those noticeable in Maiden Castle, and again with those of Cadbury Castle in Somerset.

It has not, perhaps, been noticed that Maiden Castle, Dungeon Castle, and Cadbury Castle are almost exactly equi-distant from one another, about 14 miles apart, in a straight line from south to north—in fact, in as straight a line as could be had with due care for their physical and strategical requirements. Each occupies a high position commanding a vast area to the north-east and west, the consecutive work of the same people for the same end or purpose.

In illustration of this idea I will quote from that interesting work, "A Ride in the Great Sahara," by Mr. F. H. Forbes—"The tent was pitched amidst the ruins of a Roman city whose name is unknown. It is situated in a remarkably strong position, commanding the access to a mighty plain, from which passes one of the tracks to the Great Sahara. Truly these Romans knew what they were about when they chose their strategical positions, using them also as heliographic stations." Those remarks may aptly be applied to this camp and to the other two which I have associated with it.





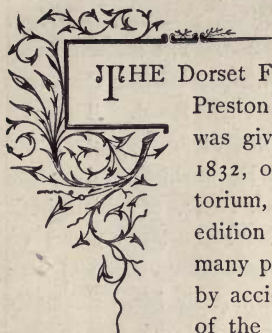
ROMAN PAVEMENT *in situ* AT PRESTON, NEAR WEYMOUTH.
[From a plan presented to the Dorset County Museum by G. R. Crickmay, Esq.]



Preston Roman Pavement.

By HY. COLLEY MARCH, M.D., F.S.A.

(Read Sept. 10th, 1900.)



THE Dorset Field Club just twelve years ago visited Preston to see the pavement, when an account was given of the finding on Jordan Hill, in 1832, of a so-called Roman temple, a sanatorium, and a cemetery. Of this, the last edition of Hutchins' *History of Dorset* contains many particulars. The pavement was found by accident in 1852 by Mr. Scutt, the tenant of the farm; and it was fully uncovered for the British Archæological Association in 1871.

Our lamented Vice-President, the late Sir Talbot Baker, roofed it over, and it was furnished with a wire protection by this society.

Much Romano-British pottery has been found in the neighbourhood of this pavement, in the adjacent garden, in the meadow, and in Preston churchyard, as well as many coins dating from Gordian to Postumus, a period of about 30 years, in the 3rd century from A.D. 237 to 267. It is important to notice that Postumus was an Emperor of Gaul, styled Germanicus Maximus, who surrounded himself with a Gaulish court, and with artificers of great merit.

The room containing the pavement was 21 feet square, and the mosaic itself was about 15 feet square. The tesserae vary in size and in shape. For the ordinary geometrical patterns of corridors and so forth they exceed an inch square, whilst for the work of delicate portions of the design some are less than half that size; and the square form is departed from as occasion requires. The colours are, or were, black or brown, red, blue or grey, and white or yellow, but the last are now hardly distinguishable. In many Romano-British mosaics, a row of bluish tesserae is often interposed between the white row and the red one. It should be noticed here that in the cable-pattern the strand is composed of an outer and an inner line of black, of a single line of red, and of a double line of white tesserae. I venture to think that one of the latter, that next the red, consisted of blue or grey, now utterly faded. The material is all from the surrounding district, and is a little coarser than that which composes the fine mosaic in Olga Road. The red tesserae consist of broken tiles, and not of terra cotta; the black are Kimmeridge coal, and not a Devonshire marble; the white and bluish white are of Purbeck stone, of which beds extend from Chalbury to Poxwell. Near the latter place, an exposure may be seen from which the banded specimen of blue and white now shown was recently taken. By Mr. Crickmay's drawing, prepared when the mosaic was uninjured, the scheme can be easily understood. The management of the tesserae should be observed. The white ones which serve for filling-in are arranged with skilful purpose. A special row of them follows and supports all the chief lines of the design; and a double row emphasises the most important features. Even the tesseral joints possess a high value, for, set at right angles to the running, they greatly enhance the beauty of the general effect.

At the meeting of the Club twelve years ago, it was contended that the pavement belonged to Christian times, because it contained no pictures of heathen mythology; but this view is, of course, quite untenable. The design strikingly resembles in type that of the Dorchester tessellation, and belongs, doubtless,

to the same period. Those persons who think that man began to adorn a variety of objects from an inbred tendency to embellish things, will be inclined to go no farther. It will suffice for them to say "Lo! here is a decorated floor." Others, who believe that the love of ornament has been of slow growth, that it originated, on the one hand, from a close attention to the forms of artifice and structure, and, on the other, from efforts to fashion magical charms and devices, will see at Preston what I have attempted to decipher on the Dorchester mosaic.

The cordage motif, that plays its part here, we may recognise also on early British vases, on Assyrian cylinders, and on the propylons of ancient Egypt. It sprang from that expectancy of completeness that was associated with fabrics of twisted fibre, of basketry, and wattlework. And we witness, too, the mystical mark, the auspicious token, which claimed alliance with the divine life and power that shone forth from Heaven and that all men knew and venerated. Sometimes this affinity was denoted openly by a radiant solar circle, and sometimes it was indicated by cryptic signs like those which were furnished by the Lily of the Nile, the emblem of the sun. The Egyptians were, naturally, the first people to develop their favourite motif into a scroll, to insert into the opening spirals a lotus flower, and to adorn the ceilings of their tombs with this fitting symbolism. A thousand years afterwards, in B.C. 700, the Phœnicians had carried the design across the Mediterranean, where it decorated Melian vases. Ultimately it was adopted by the Greeks, who handed on to Rome the lotus-frieze we now possess. In the pavement before us, a parallelogram is bordered by a cable pattern. From side to side, at the two ends of the oblong, runs a lotiform scroll. By this treatment the oblong is resolved into a square. This, broken up into an octagon, encloses another, the predominant square, which contains the ruling device of the entire scheme. All the ornamental fields are separated by the binding motif, the same cable pattern. Outside the octagon, the corners are filled with triangles; between the octagon and

the inner square the space is occupied by fretted spirals; and the central panel sustains a rosette, a disc with eight rays. The Preston pavement is signed with the signature of the lotus. The rayed circle, the triangle supports, the fretted spirals, the floral frieze, are, in all their details, lotus derivatives.

POSTSCRIPTUM.

The Vikings, in some of their wanderings, must have seen the solar-duplex. They took it as a suitable sign for their sun-god Frey, and, in their decorative metal-work, placed it beside the triquetra (Worsaae, *Danish Art*, p. 197). A similar association may be seen in a church at Assisi, IX. cent., where the two symbols, now with a Christian significance, rest on the lateral limbs of a Latin cross (Cattaneo, *op. cit.*, p. 197).

The term "solar cross" is too restrictive. It would be better to call it the "sign of orientation." Its equal limbs indicate the four cardinal points. It stands as a solar symbol, and it decussates the sun's disc, because it is the sun that determines the east and the west, the south and the north. The equilateral cross, which designates territorial expansion in certain picture-writings, does so by spreading its equal arms to the four quarters of the world. But it is especially the solar cross of North America that should be called the Sign of Orientation, since it was used by the Indians to specify the winds which were sometimes made to issue from holes in its limbs. A sign, among the same people, that accidentally resembles the Latin cross, stood for rain; the heavens being represented by the transverse, and the downpour by the vertical bar.

By the car-driving nations of the old world, the decussated solar disc was developed into a six-rayed wheel, the "roue solaire," which was used in Chaldæan worship, as a symbol of the sun, B.C. 600 (Perrot and Chipiez, *Hist. of Art*, II., 275). The Gaulish sun-god is represented as carrying a six-rayed wheel on his shoulder (Gaidoz, *Symbolisme de la Roue*, p. 3).

This "Amulet of the Gauls" was adopted by Christians, who named it "the star of Constantine." Regarded as a chrisma it was, not the Chi Rho, but the Iota Chi, that found its place in the decoration of Syrian churches, as at El Barah (Vogüe, Plates 42, 49), and afterwards in Italy.

The Labarum, a ringed Chi without the Iota, is called by M. Gaidoz (*op. cit.*, p. 78) "la roue équilatérale disposée diagonalement."

The dates given to some Irish Illuminated MSS. in a footnote (p. 183) are the earliest references to them by the Annalists. The late Bishop Reeves, to whom the question of their antiquity was referred by Haddon and Stubbs, assigned the Books of Armagh, Moling, Dimma, Macdurnan, Durrow, and Kells to the early part of the IX. cent. (H. and S., *Councils and Ecclesiastical Documents*, I., 190).





The Church of Wootton Glanville.

By Rev. Canon C. H. MAYO, M.A.

(Read to the Dorset Field Club in Glanvilles Wootton Church, 8th June, 1900.)



THE worthy Secretary of the Field Club has thought fit to require me to write a paper on the Church of Glanvilles Wootton, in which we find ourselves to-day, and as the first duty of the members of the Club is that of obedience to its officers, I will do my best, though that best be but little, to discharge the task which he has laid upon me.

We are standing in a church which, like so many others, has passed through the ordeal of restoration. And the first remark that I have to make is to mention the fact which, upon examination, you could readily infer, that the chancel, chancel arch, and the north wall of the nave have been newly built from the foundations. This was done in 1875-6, under the superintendence of Mr. G. R. Crickmay, and the church was re-opened for Divine Service on 22nd April in the latter year. Some features from the previous structure are preserved in the new walls, and to them I will presently refer.

What the earliest church on this spot was like we have nothing to inform us. No fragment of Saxon or Norman carving came to light in 1875. There is one relic, however, that takes us back to the 13th century—viz., the ancient font of Purbeck marble, with octagonal bowl, bearing on each face a pair of incised pointed panels, and supported on a circular stem, surrounded with eight small pillars. The base is also octagonal. The eight pillars and the central stem or support are new. If an old plate in Hutchins' History may be trusted, the stem of the font was previously a solid octagonal pier. This font formerly stood, as we are told in *The Gentleman's Magazine*, within the chapel, having been placed there some time after the suppression of the chantry. The font cover is a good piece of work of the end of the 17th century.

We may conclude, therefore, from the occurrence of this font that a church of Early English or earlier date was formerly existing here, a building which may have been, as I think there are indications to show, of smaller dimensions than the present edifice.

Passing from the Early English to the Decorated period, we arrive at what is the great feature of interest in the present building—the chapel of the chantry, founded (Hutchins says *re-founded*, but as I have not seen the original documents I cannot say whether correctly or no) by Sibylla Glanville, 18 Edw. III., 1344, and endowed by her with the Manor of Foffordeston (now called Forston), in the parish of Charminster, and one messuage and lands in Glanvilles Wootton, for a chaplain to celebrate Divine Service every day for ever at the altar of B.V. Mary in this church.

The Glanvilles (members of a great legal family) were connected with this parish from the time of Henry de Glanville, lord of Glanvilles Wootton, circa 1216 (nephew of Ranulph de Glanville, Chief Justice of England and Earl of Suffolk, who died 1190). He was father of Geoffrey de Glanville, 1260, succeeded by John de Glanville, who occurs in 1275, father of Sir Henry de Glanville, who presented to the Rectory in 1302. His son, William de

Glanville, lord of Glanvilles Wootton and of Foffordeston, 1330, married Sibyll, foundress of the chantry, who presented the first chaplain 3rd March, 1344. Her son, John de Glanville, was the last owner of the name, and presented to the Rectory in 1350, and to the chantry in 1396-7, and left a daughter and heir, Joan, married to Robert More, of Marnhull, whose daughter, Edith, carried the estate to the Newburghs, of East Lulworth, in 1422. (See the Records of the Anglo-Norman House of Glanville, by W. U. S. Glanville-Richards, 1882.)

The chapel of this chantry, measuring internally 21ft. 4in. by 13ft. 8in., is a beautiful specimen of flint work with Ham stone dressings, and is lighted with three large Decorated windows, the tracery of each being of different design. Beneath the two southern windows are arched recesses, in one of which a recumbent effigy is now placed. Below the east window is the ancient altar slab, taken from the floor, repaired, and replaced in its old position, but on new supports, in 1875-6. On each side are brackets for statues, long since removed; on the south side a piscina with shelf, which has been repaired, and on the north the remarkable double hagioscope. On two sides of the chapel a stone bench runs at the foot of the wall. The whole is connected with the nave of the parish church by a small doorway, in which the door staples still remain, and a wide spreading arch. Below this arch rested the recumbent effigy already mentioned. To quote the account of it in *The Gentleman's Magazine*, 1817:—"Under the arch which separates this chapel from the body of the church is a stone coffin with the effigy of a man in a loose dress, belted, a sword by his left side, and a lion or dog broken off at his feet; length, when perfect, about 5ft. 10in. From a piece of the lid being broken off, it appears that the coffin was a plain stone chest." (Vol. for 1817, pt. ii., pp. 297-8.)

It may be noticed that the figure, of Ham stone, whose head, with long flowing hair, rests on a cushion, while the hands are folded in prayer, is dressed in a short tunic, gathered in at the waist, the sleeves also being somewhat short. Over this is a hood, with the peak swung round on the right shoulder. The

sword and belt are prominent objects; but the writer in *The Gentleman's Magazine* seems to have passed by the implement—dagger possibly, though it is not like one, nor on the usual side—which a friend, well versed in arms and armour, who visited the church with me last year, could not satisfactorily account for. A kind of pad or greave appears on each leg. On the left side of the left leg it can readily be seen, and, on passing the hand down the right side of the right leg, its lateral edge may be felt in a corresponding position. The straps of the spurs are still traceable.

It is to be regretted that a new and fancy face has been added to the effigy. The right foot has also been restored, if the plate in Hutchins is correct. The stone coffin, mentioned in *The Gentleman's Magazine*, and also shown in the old plate already mentioned, has wholly disappeared.

Observe the ancient tiles, some on the footpace of the altar, others on the floor of the south-west arched recess, the most interesting being two (now under the altar) representing a stag hunt—perhaps of the famous White Hart, slain, as the legend says, by De la Linde. The remaining tiles are reproductions. In the south windows are some fragments of old glass. *The Gentleman's Magazine* speaks of a “neat figure of the Virgin, and some other small fragments, in the east window.” This figure of the Virgin has disappeared, and the window is occupied by modern glass. What remains in the other windows is a medley of scraps of glass some of which are of Tudor date. I have been told that some pieces, perhaps these, came from the old domestic chapel at Grange, hard by. Two figures of Saints (not Angels), swinging censers, are in their original position. There is a curious scrap showing a nose and two eyes on a very large scale, which must have belonged to a face of enormous size. It is in the most eastern trefoil of the south-east window. The panelled oak ceiling was renewed at the restoration.

Externally the chapel on its south side presents a very fine piece of masonry, the windows deeply recessed, and the walls supported by dignified buttresses. You will notice that the south

wall is some nine inches thicker below the windows than elsewhere. This is to allow for the construction of the arched recesses beneath the windows. Notice also that the east window of the chapel is nearly flush with the exterior of the wall, thus differing very markedly from the southern windows. The reason of this variation will be apparent when it is observed that space was required for the altar slab to rest on the sill below the east window within the chapel, thus obliging the mullions and tracery to be pushed eastward as far as possible. This east window had been blocked internally by the monument of Mrs. Leigh, who died in 1783, but, says Hutchins' Second Edition, the obstruction was removed in 1806, when the monuments were repaired.

Another point to be noticed is that the chapel, and, indeed, all the old church, including the tower, was at one time plastered on the exterior and interior. The pick-marks on the Ham stones, to enable the plaster to adhere, are in many places visible. This plaster was removed in 1875, and, as far as the outer coat was concerned, to the obvious detriment of the building, and the damp is now extensively finding its way in.

The most remarkable feature in connection with the chapel is the large, ribbed, skew archway, through which the double hagioscope opens into the chancel. This had been mutilated and blocked up on the chancel side, but was opened out at the restoration. The little carved head on the north-east side was found, I am told, built up elsewhere in the chancel wall, and was replaced in its old position, to which it accurately fitted. The cornice is a regrettable addition, made in 1875.

I may add that, at the date of the restoration, this chapel seems to have been claimed by Mr. Sturt, now Lord Alington, who relinquished, though he did not convey, whatever right he had in it to the Dale family, by whom it was placed in its present condition of repair.

Leaving the chantry, we may turn our attention to the porch, south wall of the nave, and the western tower. All these are subsequent to the date of the chapel, and were built in "Perpendicular" times.

I mentioned just now that the older nave was probably of smaller dimensions than the present one. Look at the doorway, and you will see that where the Decorated and Perpendicular work join, the north-west buttress of the chapel shows itself in the wall. This buttress has been cut into to allow the insertion of the end of the sloping head of the Perpendicular doorway. If this was an external buttress it would seem that the wall of the old nave, when the chapel had been built, did not overlap the wall of the latter, as at present, and that the nave was consequently narrower or shorter than that now existing. This view is confirmed by another circumstance. When the north wall of the nave was taken down in 1875 it was found to have been built upon a line of wooden coffins. The coffins had decayed, and the wall had naturally fallen outwards. I take it that in the 15th century the nave was widened by setting the north wall, and what remained of the south wall, further apart—at any rate, by moving the north wall northwards. Probably the nave was also lengthened.

I might here remark that we are now at the edge of a region of diminutive churches, usually consisting of a nave and chancel, on a small scale, with or without a western tower. Hermitage, Hilfield, Holnest (enlarged by the addition of an aisle at the close of the 15th century), Long Burton (rebuilt, except the tower, circa 1450, when the church seems to have been lengthened, so that the chancel was built outside the churchyard, but on the glebe), Folke (rebuilt, with the exception of the tower, on a larger scale in 1628, and lengthened so that the chancel abutted against the east wall of the churchyard), North Wootton, Haydon, Goathill, Caundle Marsh, Stock Gaylard, Lillington, and Beer Hackett. Glanvilles Wootton I take to have been another example of the same kind, and that before the erection of the chapel and the Perpendicular work of the 15th century it consisted of a small chancel, nave, and porch only.

There is nothing which calls for remark in the rest of the south wall of the nave or in the tower. The entrance archway

of the porch is of much the same character as that at Long Burton (which dates from about 1450), but it is smaller. Traces of red colour may be seen on the soffit of the slab above the nave doorway; and the indication of a holy water stoup appears in the wall near the font. The tower arch resembles that at Holnest, but is not so lofty.

In the north wall of the nave are re-inserted certain portions of the old doorway and window (for there was only one window in the former wall). There is a curious opening in the east side of the archway of the north door. This was found in the old wall, and was reinstated in the new, but I cannot tell whether it was accurately reproduced. A wall painting, no longer in existence, representing the miraculous draught of fishes, so I am informed, came to light on the removal of the whitewash which covered the north wall, and another painting over the gallery exhibiting the devil armed with a flail.

The chancel, which was pulled down at the restoration, was about three feet longer than the present one. A round-headed east window (*cf.* the former chancel at Holwell) had been inserted in the 18th century, and fragments of its predecessor were found built up in the wall. In the north wall was discovered an Easter sepulchre, which had been mutilated and bricked up. Its fragments may be seen in a rockery in the Rectory garden. The former chancel arch, which was of no value, gave place to what you now see. The two ancient features which remain are the piscina with its ogee head, and the head of the priest's doorway, and seem to suggest a former Decorated chancel.

I may briefly call attention to the mural monuments. Two, to John Every and Barbara, Lady Henley, remain in the chapel, others have been removed to the tower, where they are rapidly perishing. The inscriptions may be found in Hutchins' History.

The pulpit and lectern are excellent pieces of turnery, by Mr. E. R. Dale, A.I.E.E.

The parish register dates from 1546, and when it opens a scion of the Glanvilles appears in the marriage of Walter

Hollwall, gen., with Joane Glandfeild, gn., 22nd May, 1546. The parish account books begin in 1696.

The Communion plate consists of a chalice with cover and a paten. The chalice is inscribed "Kiddle, churchwarden, 1689." It has no hall marks, and is no doubt of provincial manufacture. The fashion is much older than the date it bears, and the vessel is either a copy of an Elizabethan chalice or is an old chalice, bought second-hand by the parish in 1689. The paten bears the name of the donor, Rev. John King, rector, 1755, who was also owner of West Hall, some four miles off. Of this worthy it is said that one day he left his sermon at home, and set the Wootton people singing the 119th Psalm while his servant rode to West Hall to fetch it. But this story is told of other localities.

There are four bells in the tower, inscribed respectively :—

1.—Sunt. mea. spes. hii. tres. xpc. maria. johes. Recast by John Warner and Sons, London, 1878.

2.—Ave Maria.

3.—Thomas Knight, John Drake. Anno Dom., 1700.

From the parish accounts it may be seen that the new casting of this bell cost £8, and 25lb. of new metal £1 9s. 9d., and other incidental expenses £1 19s. 10d.

4.—Cast by John Warner and Sons, London.

This is a new bell, procured *circa* 1876.

A parish tradition says that Buckland Church has a bell taken from this tower.

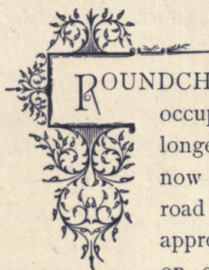




Roundchimneys.

By C. W. DALE, F.E.S.

(Read June 8th, 1900.)



ROUNDCHIMNEYS, now used as a farmhouse, in the occupation of Mr. Charles Gould, formerly belonged to the great Duke of Marlborough, but now forms part of my property. On the main road near the turning by which the house is approached stands a pair of ancient oaks, one on each side of the road, called "Gog and Magog," survivors of the old Forest of Blackmore. When my grandmother was young she could ride all the way from her house to Sturminster Newton, a distance of ten miles, without encountering a single hedge, which gives one an idea of how much the character of the country has changed.

The following notes are partly compiled from my "History of Glanvilles Wootton," published some years ago.

Ancient records show that in 1231 a fair was granted at Blackmore or Newland Manor (which last name is derived from being a new enclosure from the Forest of Blackmore) by King Henry III.

1290. King Edward I. made a royal grant of the Manor of Newland, with woods, lands, and rights in the said Forest of

Blackmore, to Simon de Monteacute (from whence a name for the Manor, Newton Monteacute), at the rent of 10s. per annum.

1320. King Edward II. granted a tract of waste land of about 140 acres, with all the rights, privileges, and advantages, to William de Monteacute.

1350. Catherine, his wife, had as dower this hamlet (or tything) from King Edward III. confirmed.

1377. This aforesaid William de Monteacute (Earl of Sarum) died seized of this Manor of Blackmore, otherwise called Newton Monteacute.

1379. King Henry IV. confirmed the same to John, Earl of Sarum.

1429. King Henry VI. to Thomas, Earl of Sarum.

1430. Granted by patent for life to Alice (the Countess), his wife, and, secondly, to Margaret, his daughter, wife of Sir Richard Pole, and Countess of Sarum. For some disaffection, whether real or imaginary, she was tried, committed, and executed, and afterwards buried at Christchurch. The Manor, which was then valued at £13 10s. 1d., again reverted to the Crown.

1553. Queen Mary granted anew this said Manor to Francis Hastings, Earl of Huntingdon, and Catherine, his wife (he died in 1561), eldest daughter and co-heir of Henry Pole, Lord Monteacute, son and heir of Margaret, Countess of Sarum, and Sir Richard Pole, her husband.

1581. Queen Elizabeth confirmed the above Royal Grant to Henry, Earl of Huntingdon, who died in 1595, and was succeeded by his brother George, Earl of Huntingdon.

1596. It appears to have passed through the hands of Gamage to the Churchills. John Churchill, of Mintern, was an eminent counsellor, who greatly increased his property. He compounded for assisting the King's forces at £440. His son, Winston, born at Roundchimneys, 1620, and admitted at St. John's College, Oxford, in 1636, at the age of 16, quitted the University on the death of his father without taking any degree. He adhered to the Royal Cause, for which he suffered severely,

being forced to take refuge with his wife, Elizabeth, at the house of her father, Sir John Drake, at Ashe, Devonshire, and to compound for £446 18s. In 1661 he was chosen member for Weymouth, and soon after Fellow of the Royal Society. He was author of "*Divi Britannici*," or "*Remarks on the Lives of all the Kings of this Isle*." (London, 1675.) In 1663 he was knighted, and died in 1688, leaving his property to his surviving son, John, born at Ashe House, 1650, who was afterwards the celebrated Duke of Marlborough. Sir Winston, before his death, in 1685, sold the manor and estate of Newton Montacute to Dr. Simon Wellman, of Poundisford, Somerset.*

It remained in the possession of the Wellman family for 154 years, when it was purchased of Thomas Wellman and Charles Noel Wellman, his son, in 1839, by James Charles Dale, father of the present owner. The Mansion House, called from the form of the chimneys—Roundchimneys, and, in olden times, Golden Grove—stands on the north-east side of the parish, about a mile from Glanvilles Wootton Church. The north side of the house, which included the offices, was taken down some years ago, and the remainder repaired by Mr. Thomas Wellman. On a stone over the door, and over windows on a house taken down near it, was the date 1632, the two middle figures being reversed—1932. One of the chimneys bears the date 159-, the fourth figure being defaced. Upon another chimney is a device, perhaps a mason's mark— $\frac{\times \times}{+}$. It was one of the best planned and most comfortable houses of the age of Elizabeth, and when complete must have been a most excellent gentleman's residence. The situation is pleasant, and the surrounding grounds appear to have been formerly laid out into garden, fish ponds, and every convenience for the residence of a man of fortune. Neither painted glass nor arms remain in the windows or upon the walls. The annexed considerable and very improvable estate

* On the deed are the seals and signatures of Sir Winston Churchill and Dame Elizabeth, Lord and Lady (Sarah) Churchill, and (Admiral) George Churchill.

consists chiefly of rich pasture lands, and abounds with oak and other timber.

Roundchimneys was originally a royal manor ; and until quite recently the Lord of the Manor had the right to appoint his own constables, waywardens, and overseers. But I am afraid that the régime of the District Councils has knocked all such prerogatives on the head. However, the royal grant to Simon de Monteacute gave the Manor the right of appointing its own officers. The old Court Rolls commenced in 1612.

13 Edward II. William de Monteacute held a certain waste in the Forest of Blackmore ; there was a certain free tenant who paid 10s. per annum, which rent, waste, and lands were held of the King in chief as parcel of the Barony of Monteacute. It was held of him by Giles Blakemore, being a carucate of land in free socage.

18 Henry VI. It was held by Thomas Blakemore and Henry Blakemore, Canon of Wells, whose names occur in an old deed.

24 Henry VI. A fine was levied between Sampson Brown and John Holwel, querents, and Thomas Blakemore, deponent. In 1573 it was purchased of William Holwel by John Clavel, of Barnston, in the Isle of Purbeck, an ancestor of our respected President. In later times these lands appear to have been included in the Manor of Newland. The house stood in the orchard adjoining the farmhouse of Over Newland, where still an ancient yew tree stands as a relic from the past. There used to be a picturesque rookery close to Roundchimneys, but about 60 or 70 years ago the ravens came and drove all the rooks away.

The origin of the names King's Stag and Vale of White Hart is explained in the following story :—King Henry III., having disported himself in the Forest of Blackmore, spared a goodly and beautiful White Hart, which afterwards one Sir John de la Lynde with his companions hunted and killed at King's Stag Bridge, in the parish of Lydlinch. On hearing of it the King was so enraged that he not only punished them with imprisonment and a fine, but taxed the land over which the White Hart was known to go, the owner having to pay a yearly sum of money

into the Exchequer, called White Hart Silver. For Ball's Farm the sum of one shilling and sixpence was paid in 1806. The money was collected by the Lord of the Hundred of Buckland Newton. The posterity of Sir John de la Lynde ever after gave for their arms White Hart's Heads on a red shield. Their seat was formerly at Hartley, under High Stoy, and they also owned Hermitage. The story is represented on old encaustic tiles in the chantry of Glanvilles Wootton Church. According to local tradition, Sir John found the White Hart at Buckshaw, drove him through Hartleaze, in Newland, to Hart's-foot Lane, where he got a bit worried. If you said "Did ye see the splay foot of him going up over the plusher" the people of these parts used to get quite "shirty."

According to local tradition there was also a battle fought in Glanvilles Wootton, probably in the turbulent times of King John and his barons. In it Henry de Glanville, whose effigy is in the chantry of the church, was killed, and was found under an oak in Splitmead, now cut down, with a dog at his feet.

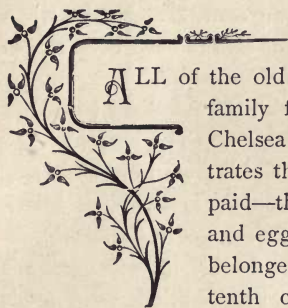




On the Collections at
Glanvilles Wootton Manor House.

By C. W. DALE, F.E.S.

(Read June 8th, 1900.)



ALL of the old china you see has belonged to my family for a great many years. The old Chelsea is very valuable. One piece illustrates the method in which tithes used to be paid—the farmer with the tenth of the pigs and eggs, his wife with the tenth child. It belonged to my great great aunt, who was a tenth child. The Chelsea cock is also valuable; the hen had its head broken off. Our grandmother placed no value on them, and gave them to myself and brother to play with and roll about the floor. The tall Japanese vase belonged to Captain Dale's brother, and on his death at sea was delivered up to Captain Dale by his landlady. The Japanese tray and urn are enamelled on copper. There are also some China saucers, with the three, four, and five-claw dragons upon them. The barber's basin, with the hole to fit the chin, is also curious. There are also some

Worcester pieces with deer and other emblems upon them. On the sideboard is a handsome breakfast and Derby dessert service given to my grandmother on her marriage in 1788.

There are also some very old pictures and prints. One, done originally by the ship's carpenter, is of Captain Dale's fight with the pirate "Tullagree Angria," off the Coromandel Coast. In the picture on the other side you will see him on the poop of his ship, the Falmouth East Indiaman.

The paintings of the reading girl in red shoes and of the rat-catcher are said to be very valuable. The two large paintings in the hall are of Mr. Taunton, founder of the town of Southampton, and his wife. The latter is feeding her parrots with cherries. Amongst the old East Indian engravings, which were published according to Act of Parliament in 1754, you will see one of St. Helena, the island prison of Napoleon, and now the home of Cronje. Those two of woodcocks are not painted, but artistically made of feathers.*

Two small drawings were done by my aunt, Mrs. Meggs, when she was only seven years old. She was said to have been one of the most beautiful ladies ever seen in Dorsetshire.

The worked samplers in the case with the freedoms † are very old, one of them bearing the date of 1687. The ancient letter is of the same date as the freedoms, and is from Lord and Lady Glencairn, telling Captain Dale that they are sending him a mutton, as it is better than anything he can get in Greenock.

I have also some old and curious books, including Albin's original drawings of insects, the first edition of White's "Selborne," and an old edition of Aristotle, bearing the date of 1580.

The Rev. F. O. Morris, the well-known ornithologist, sent an interesting account of Glanvilles Wootton and its owner to

* The bill, eyes, and legs are painted of course.

† Glasgow, Renfrew, and Dumbarton. They were presented to Captain Dale in 1750, his ship being driven by stress of weather up the west coast of Scotland, where at that time so large a ship was seldom seen,

the "Naturalist" for 1837, of which I will give you a few extracts:—

"Glanvilles Wootton is a small country village, in a retired and very lovely situation, between Sherborne and Dorchester. Mr. Dale is the squire of the parish. Except in the summer season, when he generally makes an entomological tour (for he thinks nothing of a trip to Scotland or the Lakes in quest of a rare butterfly), he is to be found at home. He has one room occupied entirely by cabinets of British insects, stuffed birds, and the most complete entomological library in England. He has about one hundred and twenty drawers well filled with the insects of our islands, to a number that I am almost afraid of mentioning. They are all scientifically arranged according to the excellent classification of Mr. Curtis, author of 'British Entomology.' It would be an endless task to enumerate the rarities which enrich Mr. Dale's cabinets. His brilliant discoveries in the Stylops are well known, and any person, whether entomologist or not, will receive a hearty welcome and have the gratification of inspecting the collection, which he has been upwards of thirty years amassing, and in the completion of which he has spared neither time, trouble, nor expense.

The neighbourhood of Glanvilles Wootton is well wooded. Mr. Dale used to take the Swallow-tail about twenty years ago, on a rather high and dry hill, and elsewhere, but he has never seen it since, which is very remarkable, as he did not take all the specimens he saw, and the butterfly continues to appear every year in the fenny counties in which it is found. *L. Acis*, or the Mazarine Blue, was at one time taken, in great numbers, on the same hill as the Swallow-tail, but is now only occasionally met with, and on the low grounds *Plusia orichalcea*, or the scarce Burnished-brass Moth, was formerly abundant on the honeysuckle in his garden.

Mr. Dale, in a letter lately received, informs me of a white woodcock, a dusky one, and another with white wings, in the collection of Sir Richard Colt Hoare, Bart. A nest was also found on Middlemarsh Common in April, 1836. He also informs

me of his having found a red cowslip growing wild, which I believe is a very great curiosity."

As will be seen from the foregoing account, the Rev. F. O. Morris stated that my father had a hundred and twenty drawers full of insects in 1837. Now (1900) I have three hundred and seventy-seven drawers all full of British insects. The butterflies form the most important portion, being contained in twenty large drawers. The most valuable drawer (the *bonne bouche* of the butterflies) is beyond question that of the beautiful series of the Large Copper, taken by my father at Whittlesea Mere. Since the Fen districts have been drained and reclaimed, these lustrous denizens of the marshes, as well as other species of insects and birds, have disappeared. None have been taken since 1850, and their nearest relatives are found in the Pontine Marshes near Rome. Besides the three rows of the Large and Scarce Coppers, there is a whole row of the Mazarine Blue, another extinct species, formerly found at Glanvilles Wootton, and a fine series of both the Small Copper and the Small Blue, containing good varieties, especially of the former, one being entirely white. There are besides in the drawer a couple of the rare Pea-pod Argus (*Battus*), and also of *Argiades*, taken in Somersetshire by the Rev. Seymour St. John's friend, Dr. Marsh. This drawer would fetch at least £200. One specimen of the Large Copper, an exceptionally dark variety, is one of the most valuable insects in the world. If put up to auction it would probably fetch £50 or more, as it would be competed for not only by British entomologists but by those from France, Germany, and America. There are two grand drawers of the Blues, containing a row of the Large Blues, mostly taken at Langport by my father, and magnificent varieties of the Chalk Hill, Clifden, and Common Blues, many of them being worth £5 apiece. Another good drawer of varieties is that of the Meadow Brown and Ringlet. The two best of the former were taken by myself at Glanvilles Wootton in 1864. A similar example to one of them was in Mr. Briggs' collection, and fetched £7 at the auction in Stevens'

Rooms. The first drawer contains a fine series of the Swallow-tail, one of the largest and most showy of our butterflies, and also of the exquisitely delicate and sweet Black-veined Whites. They both used to occur at Glanvilles Wootton up to the year 1815, when they unaccountably disappeared. One of the most recent additions I have made to the collection is a fine series of the Heath and Glanville Fritillaries, containing many varieties hitherto unpossessed, and including the original specimen of *Eos*, taken at Peckham by Mr. John Howard in 1803. These I purchased at the sale of the late Mr. Sam Stevens' collection in May, 1900. Of specimens interesting to antiquarians, I may mention a specimen of the Bath White, which formerly belonged to old Petiver, and is almost two hundred years old; and specimens of the Camberwell Beauty, taken in 1793, and of the Queen of Spain, taken in 1803.

There is also a fine collection of moths, including a row each of the extinct Spurge Elephant Hawk Moth, Gypsy Moth, *cænosa*, *subrosea*, *viduaria*, *circellata*, and *polygrammata*, and specimens of the beautiful and extinct small moth, *Cerostoma asperella*, which used to occur in the Glanvilles Wootton orchards. Of varieties, I possess black ones of the Scarlet Tiger and the Orange Under-wing, and the best series of that most variable species—the button moth—*Peronea cristana*, which ranges from black to both white and red.

Apart from the Lepidoptera the most valuable insect I possess, and probably the rarest insect in the whole world, is *Halictophagus Curtisii*, figured in Curtis' "British Entomology;" and of which my father took a couple at Lulworth and in Portland on August 15th, 1832, and June 16th, 1840. This variety, with its only British allies—*Stylops melittæ* and *Elenchus tenuicornis*—also figured in Curtis' "British Entomology," and both taken in Dorsetshire by my father, have been made into an Order by themselves—*Strepsiptera* of Kirby.

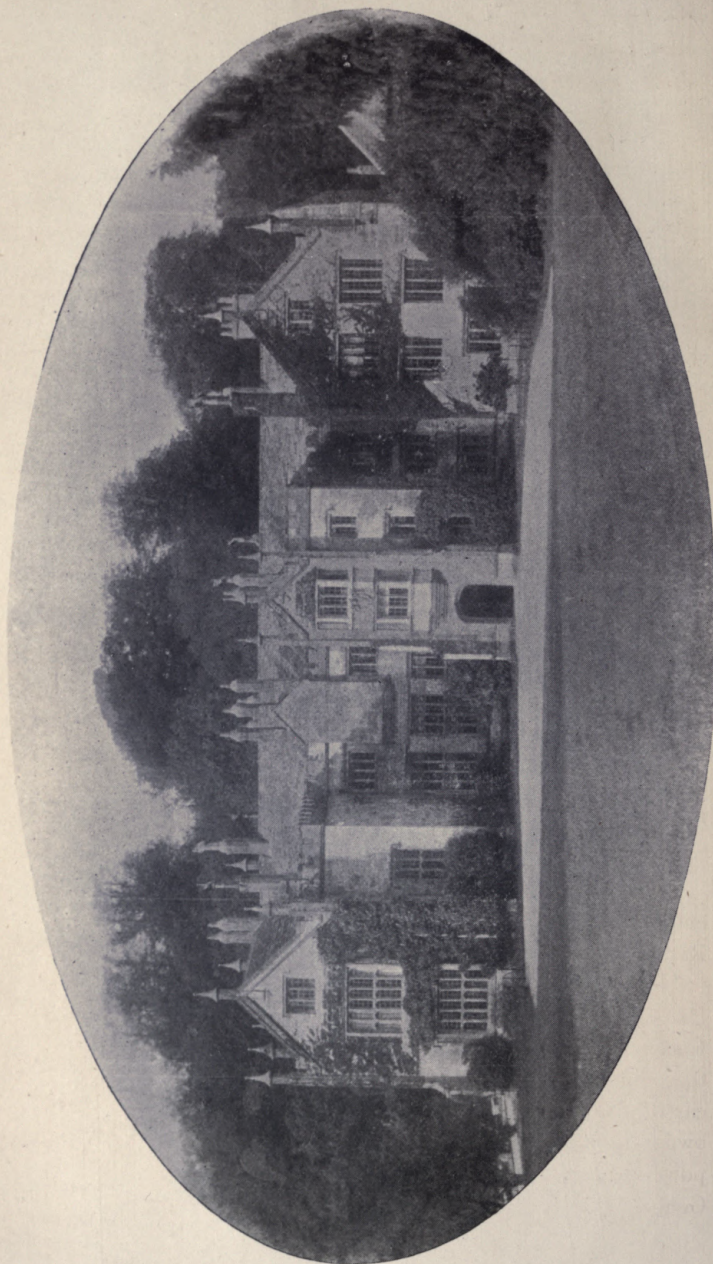
Another most valuable insect is *Hemerobius (Psectra) diptera*, one of the *Neuroptera*, but having only one pair of wings, which was taken at Langport by my father on June 27th, 1843. This is

the only specimen that has ever been taken in England, and there are only six others known in Europe.

I possess all the British species of Dragon flies and ants ; and fifty drawers of beetles, some of them containing more than a thousand species. The other drawers contain bees, wasps, saw flies, caddis flies, scorpion flies, snake flies, earwigs, crickets, locusts, grasshoppers, ichneumon flies, gnats, daddy long-legs, midges, frog-hoppers, blight insects, &c.

Since my father died in 1872, I have added 1,950 species. In the whole collection 4,564 species have been taken in Glanvilles Wootton alone. Besides the "History of Glanvilles Wootton," I have written the "Lepidoptera of Dorset" and "British Butterflies."





PARNHAM. EAST FRONT.



Parnham.

By VINCENT J. ROBINSON, C.I.E.

(The substance of an Address given at Parnham on the occasion of the visit of the Club, July 15th, 1899.)



SO many fine places of about the same date as Parnham have disappeared during the last hundred and fifty years in England that admirers of their beauty are haunted with the fear of the time coming when nothing will remain to testify to their former existence save the bare descriptions of the historian. The epoch in England, as in Italy, France, Germany, and Spain, during which the finest of these historic dwellings have been built, ranges from the end of the 16th to the end of the 18th centuries. The Renaissance style which gave rise to them commenced in Italy, travelled into France, and thence finally into England. Great Italian palaces of this period—the production of the country whence the ideas of the Renaissance started—are often so large that in many now standing abroad several families reside or carry on the business of life, the descendants of the original owners for whom they were built having decayed beyond the power of keeping them up. For instance, the Via Nuova at Genoa contains about ten houses, forming the larger part of the

street, and in most of them the representatives of the old families occupy one or perhaps two floors, whilst the remainder of the building is let out in tenements to twenty or thirty minor people.

Their designs are splendid in conception and noble in proportions. The staircase, for example, of the Municipal Palace is 20 or 25 feet in width, ascending from a grand courtyard, leading to splendid landings, on to which large and spacious rooms open. Italian palaces gave rise to French châteaux; and the style travelled into Germany and Spain, and became what is now known as the Renaissance, and in each country it was absorbed and modelled to suit the tastes of the people. In France, where they pirated the ideas of the more refined Italians, they fashioned what they took, like children pulling the beautiful forms to pieces as in wanton play, and re-formed them without reference to construction. More often splendid Italian invention was frittered away in puerile efforts with grotesque details, encumbering without helping the construction of the objects they were intended to ornament.

In Germany the more rugged character of the people asserted itself by transforming the designs so as to make it often difficult to recognise their origin.

In England the Renaissance was less seriously felt, except in very large and important works. The details were so scantily ornamented, and the feeling so cold with which they borrowed them, that England may be said to have been the least affected by the style of any country in Europe, and to have lost much of its beauty in consequence.

Italy, the great country of the Renaissance, was the one in which it originated, and there it remained until the universal decay of taste in Europe annihilated its beauty.

In the XVI. and XVII. centuries the style however travelled, and the artists who built the Italian houses were in many cases lent by the Prince or Pope, their employers, to the creators of important buildings abroad. Thus it moved with the men who used it, and in this way England, last of all among civilised nations, came to copy or assimilate as much as she could of the

Renaissance in architecture, and to embody it in the first place in such buildings as exist still in the two Universities of Oxford and Cambridge, and subsequently in the palaces built for Henry VIII., whose love of art, however, does not seem to have arisen from his knowledge of, or from any personal appreciation of it, but rather, perhaps, in a sort of rivalry with his Continental contemporaries. The style thus introduced became altered to suit the English tastes and habits, and, although losing much of its original beauty, gained in other ways by adapting itself to the domestic life of the people. Thus there were many splendid houses built such as Knole, near Sevenoaks, and Penshurst (in Kent), and Cobham, Hardwick, and Haddon (in Derbyshire), Hatfield (in Herts), and many others still remaining, though terribly disfigured by the hands of the recent restorer. During the last century some hundreds of these splendid examples of former magnificence have disappeared, mostly to give place to the unmeaning adaptation of a Greek Temple, with a façade like the portico of a building originally designed for heathen worship in a hot climate, neither the use nor the climate having the least resemblance to our own.

Parnham, although a house of much less pretensions than those mentioned above, dates still earlier than most of them appear to do.

In the time of Henry VII. it was a manor of the Strode family, who owned a large part of Dorsetshire then and for long afterwards. In the reign of Henry VIII. the Sir Robert Strode of that date "re-edified and enlarged" the house and built the present front very much as it now stands. He appears also to have added a gate-house and a courtyard to the buildings, both of which have since disappeared. At what time, or under what circumstances these buildings were formed, or when they were destroyed, there is unhappily no record to show. As it was left in Henry VIII.'s reign so it remained until the end of the last century, when, having passed by the marriage of the heiress and last of the Strodes with Sir William Oglander, of Nunwell, in the Isle of Wight, it became a possession of this family, and at the

death of the last of the Oglanders it came to the present owner. During the ownership of the Oglanders (about 1810) a certain part of the old building was destroyed on the west side to make room for some very unmeaning builder's Gothic work. This part has, however, been altered so as to revive some of its ancient beauty by harmonising it with the south-east front remaining from Henry VIII.'s time.

A strict purist may possibly condemn this alteration as having torn out a page of the history of the place and substituted another for it; nor can I defend myself from the charge without comparing the present state of that side of the building with the one it replaced.

There are occasions to which no general rule will apply, and I believe the present is one of them. No one who is not an expert could detect the alterations lately made, and then only by comparing the colour of the stone used in the mullions of two of the windows with that of the older part of the building. Some of the mullions put in recently have been made of stone worked at the same date as the house, and are, therefore, identical with them, so that no difference is discernible between those and the older windows.

Previous to 1810 the Hall had been lighted both from the eastern side, in which the windows remain, and from the western one, where the windows only reached to about eight feet from the floor, a pent roof on the side of the house, now occupied by the dining-room, having filled the space beneath these windows to the level of the garden on the outer wall. Their mullions still remain buried in the brickwork, put into the wall to carry the floor of the room above the present dining-room. One of these western windows has recently been opened, and the mullions can be seen behind the silk above the panelling in the dining-room. All the window mullions put in in 1810 had been constructed not of stone but of soft wood, and had become absolutely rotten, whilst the stone windows put there 150 years earlier remained perfectly sound. Several windows had been plastered up by the Oglanders in 1810—two

in the parlour looking into the stable-yard, and the large eastern windows in the drawing-room and bedroom over it. The two windows in the oak parlour were filled up inside the glass in their recesses with baulks of stone, but the other two window recesses had been simply filled with lath and plaster inside the glass, so that the stones were removed from the former recesses and the plastering from the latter, and the windows remained intact as they were at first built. Another piece of old work was revealed by removal of plaster work papered over in 1810, which brought the old buttery hatch to light in its original position, the door even hanging, but crumbling to dust as it was opened after ninety years of seclusion. The passage into which this opened leads to the Great Hall, which in the Strodes' time was the dining-room of the house.

In all these alterations the modern work was placed up against the old without removing or disfiguring it in any way; and it appears to me that there was perfect justification for restoring the ancient work, more particularly as the parts removed had no claims of any kind to be considered as art productions—they consisted simply of lath and plaster, covered with paper.

The beauty of Parnham is greatly due to the perfectly Tudor character of its architecture. In the Great Hall the Strobe windows remain with the Strobe emblazonments in their original glass from 1505 to 1703, and over the great chimney is a shield with the quarterings of many of the Oglanders placed there in 1810, whilst on the top of the screen are the arms of the Robinsons, its present owners. It was, therefore, thought that there would be no impropriety in putting a fine screen of the actual date of the house in this hall in the position from which one had evidently been removed by the Oglanders. And this was done. The panelling also which originally adorned the Great Hall is now to be found about other parts of the house; and preference was given to putting a series of panelling from a Norfolk house of the same date as Parnham into the hall to complete the restoration rather than to pulling the original down from other rooms to place it in its original position.

This panelling was removed in 1810 and placed about the passages and back staircase. It was thought, however, better not to tear the passages to pieces in order to produce simply the same effect. The dining-room was also built on to the western wall of the house in 1810. It formed no part of the original edifice, and, as it existed three years ago, was more like a whited sepulchre than a room. It was a sort of double cube in shape, with flat whited walls and ceiling, and three wooden mock Gothic windows. There could be no impropriety in altering this and in putting woodwork panelling inside the room with seats attached to it. The wood sashes to the windows were also removed, and were replaced with windows having stone mullions, brought, by the permission of Lord North, from Wroxton Abbey. These mullions date from the XVIIth. century, and have been contrived so as to take the leadwork and the fine glass, painted with the subject of St. George and the Dragon, formerly in Nonsuch Palace, in Surrey, and which had been put there in the same reign—namely, that of Henry VIII. This room is thus lined with Italian seats from the sacristy of a church outside Brescia, and has a painted ceiling and a tiled chimney-piece, all about the same date.

The library windows were treated in the same manner as those of the dining-room, by the removal of the wooden sash frames (much decayed) and the substitution of stone mullions in their stead, the corner stone piers and the rest of the stonework being left to receive the fresh mullions; other small additions were made to the room, but in most respects it remains as it was. In the drawing-room the frieze is Italian, painted by Pietro del Vaga, the artist who painted the ceilings and other work in the Doria Palazzo at Genoa. This was removed from one of the churches in Genoa between 1875 and 1880, and was bought by the present owner of Parnham in 1887. The chimney-piece in this room is formed of a fine Istrian marble frieze, brought from a palace in Venice some years ago, and the opening of the fire-place is lined with tiles from Kashan, in Persia. The south windows also have been made to harmonise with the real

window in the east end of the room—one of the closed windows already alluded to.

Here also hang the portrait of Cardinal Barberini, by Domenichino, and the Paul Potter picture, formerly in the possession of the Duc de Pralin.

One of the most interesting rooms in the house is the one already alluded to (the oak parlour) as having had the end windows looking into the stableyard opened, and this was called in the last century Sir Henry's business or smoking room. These windows have probably never been renewed since the house was "re-edified" in the reign of Henry VIII., when they enlightened men before the use of tobacco had clouded their intellects or impaired their digestions. The panelling now adorning the room came from the house in Norfolk before referred to, and was placed here by the present owner. It has all the appearance to the ordinary observer of having remained *in situ* since the room was built.

Over this oak parlour is the room known as Lady Maria's room, now used as a boudoir or lady's morning room, containing a suite of furniture, of Flemish origin, of inlaid marqueterie, with a background of green silk for water-colour drawings. This little room is the gem of the house.

The principal staircase, judging from its panelling, is of the time of Charles the Second.

Many of the fire-places have tiles or azulejos, from Seville, brought thence by the present owner, some of which were removed from the sides of the patios of the Calle de las Duenas, the Moorish Palace of the Duke of Alba there.

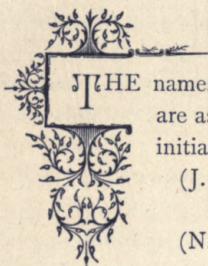
In the gardens near the house are the yew hedges of former days, and others have been added recently. Time alone is needed to raise these last to the dignity befitting their position. Fortunately grand trees still remain in the park (many even close to the house), the necessary adjuncts to a house of the date and character of Parnham. Many a noble structure suffers to-day, standing like an isolated outcast, forlorn and desolate, left to decay, as the result of its having been shorn of these surrounding beauties.



Report on Observations of the First
Appearances of Birds, Insects, &c., and
the First Flowering of Plants

IN DORSET DURING 1899.

By NELSON M. RICHARDSON, B.A., F.E.S.



THE names of those who have this year sent in returns are as follows; they are denoted in the Report by initials:—

- | | |
|---------------|--|
| (J. C. M.-P.) | J. C. Mansel-Pleydell, Whatcombe, near Blandford. |
| (N. M. R.) | Nelson M. Richardson, Montevideo, near Weymouth. |
| (E. R. B.) | E. R. Bankes, Norden, Corfe Castle. |
| (O. P. C.) | Rev. O. P. Cambridge, Bloxworth Rectory. |
| (H. J. M.) | H. J. Moule, Dorchester. |
| (E. S. R.) | E. S. Rodd, Chardstock House, Chard. |
| (G. H.) | G. Hibbs, Bere Regis. |
| (D. C.) | D. Curme, Childe Okeford, near Blandford. |
| (S. C.) | S. Creed, Coombe Farm, Sherborne. |
| (R. F. W.) | Rev. Canon R. F. Wheeler, Haselbury Bryan Rectory. |
| (E. J. B.) | Rev. E. J. Bodington, Osmington Vicarage. |

NOTES ON RARE AND OTHER BIRDS IN 1899.

Very little has been recorded of interest. The few notes sent in are given below. No rare birds appear to have been observed this year.

LESSER SPOTTED WOODPECKER (*Dendrocopus minor*).—Was often heard and seen in Corfe Castle Rectory grounds all through the spring and early summer, and most probably nested there. (E. R. B.)

WRYNECK (*Iynx Torquilla*).—Much commoner at Corfe Castle than they have been for many years past. (E. R. B.) Nested at Osmington this year. (E. J. B.)

CUCKOO (*Cuculus canorus*).—Noticeably scarcer than I have ever known them before, and the same was remarked to be the case in other counties as well, and presumably it was the case pretty generally throughout England. (E. R. B.)

NIGHTJAR (*Caprimulgus europæus*).—Much scarcer than I ever remember them. (E. R. B., Corfe Castle.)

SWIFT (*Cypselus apus*).—Numbers of swifts were seen on June 1 passing over the heath from Bound Pond to Sturdy's Lodge, from S.W. to N.E. (O. P. C., Bloxworth.)

WILD DUCK (*Anas boscas*).—Owing to the mildness of the winter our wild ducks and muscovy ducks began to lay in January, 1899, a very early date for them. (E. S. R., Chard.)

STORMY PETREL (*Procellaria pelagica*).—One was picked up dead near to the S.W.R., about 3 miles W. of Chard Junction station in September, evidently blown inland by the S.W. gales that prevailed about that time. (E. S. R.)

NUTHATCH (*Sitta cæsia*).—One observed collecting small acorns to store in January. (G. H., Bere Regis.)

BULLFINCH (*Pyrrhula europæa*).—A white variety seen on several occasions. (G. H., Bere Regis.)

SAND-MARTIN (*Cotile riparia*).—Many seen at a sand pit on April 3rd, a warm day. On the weather becoming colder they disappeared, but a quantity were seen again on April 20. (G. H., Bere Regis.)

LINNET (*Linota cannabina*).—A perfectly white specimen was seen with others of the natural colour. (G. H., Bere Regis.)

STARLING (*Sturnus vulgaris*).—A nest of starlings was hatched in the middle of February, and the old birds were seen going in with food and the young ones heard for three days, after which it is supposed that they died, as no more was seen or heard of them. (S. C., Sherborne.)

SNIBE (*Gallinago caelestis*).—A large flight passed over the Rectory grounds of Haselbury Bryan on Jan. 7. (R. F. W.)

SWALLOW (*Hirundo rustica*).—The swallows seemed not to be so numerous as usual on their first arrival. The warm summer and the abundance of insect food appeared to have a very favourable influence on the hatching. They were very numerous at the time of departure. One brood was observed to be hatched out as late as the end of August, and very probably others were also. (R. F. W., Haselbury Bryan.)

BLACK-CAP (*Sylvia atricapilla*).—Seen and heard on March 16 at Osmington. (E. J. B.)

HEDGEHOG.—On Nov. 16 one was running about the garden and grunting. (N. M. R., Chickerell.)

Mr. E. S. Rodd, of Chard, sends the following note :—"A remarkably dry late spring and dry summer and autumn. Pastures burnt up and water had to be carted miles for stock for weeks. A good deal of thunder. On November 9 the weather was wonderfully mild and the sun quite warm. A great year for rabbits. A very early and abundant corn harvest. Up to Christmas the weather was mild and dry generally, indeed one of the driest and mildest Novembers ever known. About a fortnight before Christmas we had a few days' frost and snow in the S. of England and hunting was stopped for some days. Mild damp weather with alternate frosts ended the year 1899."

Canon Wheeler (Haselbury Bryan) sends the following notes on weather :—

"February 7, 1899. Thunderstorm. Cyclone lasting five minutes at 12.50 p.m. passed over a small part of the parish. Ten apple trees were thrown down in our orchard, and damage

was done to the roofs and chimneys. The width of this path of the cyclone was only a few yards, nor did it extend very far.

Feb. 12.—Very strong gale. Trees uprooted.

Feb. 13.—Strong gale. Thunder and hail at times.

Mar. 23.—Heavy fall of snow.”

Dr. Curme (Childe Okeford) records as follows :—

“ June 28.—Heavy hailstorm : stones the size and shape generally of marbles $\frac{1}{2}$ in. in diameter.”

The lists of First Appearances, &c., are appended :—

FIRST APPEARANCES OF BIRDS IN DORSET IN 1899.

	Dorset.	J. C. M. P. Whitcombe.	N. M. R. Weymouth.	E. R. B. Corfe Castle.	O. P. C. Bloxworth.	F. S. R. Charl.	G. H. Bere Regis.	D. C. Childe Okeford.	S. C. Coombe Farm, Sherborne.	R. F. W. Haselbury Bryan.	F. J. B. Osmington.	H. J. M. Dorchester.
Flycatcher ..	Ap. 19	Ap. 10	May 4	May 7	..	..	..	..	May 22			
Fieldfare ..	Nov. 5	Dec. 2	..	..	..	Mar. 19 L.	..	..	Nov. 5			
Blackbird ..	Jan. 14 s.	Jan. 14 s.	..	..	Feb. 14 s.	..	Jan. 20 s.	Mar. 15 s.				
	Mar. 10 N.	Mar. 10 N.	..	..	..	Mar. 18 E.	Mar. 15 N.	Mar. 13 E.				
	Mar. 13 E.	..	..	..	..	..	Ap. 4 E.	..				
Redwing ..	Dec. 20	Dec. 20	..	..	..	Mar. 19 L.	..	..		
	Mar. 19 L.	..	..	..	..	May 1 s.	Ap. 13 s.	Ap. 27 s.	..		Ap. 26 s.	
Nightingale	Ap. 13 s.	Ap. 19 s.	May 9 s.	Ap. 30 s.	Ap. 16 s.	..	May 10 E. (3)	..	..	..	May 1-8 N.	
Wheatear ..	May 10 E.	Mar. 30	..	Mar. 23	..	..	Ap. 8	..	..	..	..
Willow Wren	Mar. 23	Mar. 29	..	Ap. 1 s.	..	..	..	..	..	..	..
Chiff Chaff..	Mar. 13	..	..	..	..	..	..	..	..	..	..
Whitethroat	Mar. 16 s.	Mar. 30 s.	Ap. 16 s.	Mar. 31 s.	Mar. 13	Mar. 27 s.	Mar. 31 s.	May 1 s.	..	..	Mar. 16 s.	
Skylark ..	Ap. 9	Ap. 18	Ap. 9	..	Ap. 2 s.	..	..	..	..	..	..
Rook ..	Jan. 4 s.	Jan. 4 s.	Feb. 18 s.	..	..	..	Feb. 13 s.	Feb. 26 s.	..	..	..
Cuckoo ..	Feb. 18 N.	Ap. 13 s.	Ap. 13 s.	..	..	..	..	..	..	..	..
	Ap. 9 s.	Ap. 13 s.	Ap. 13 s.	..	..	..	..	..	..	..	..
Swallow ..	Ap. 8	Ap. 18	Ap. 19	Ap. 16 s. (2)	Ap. 9 s.	Ap. 15 s.	Ap. 10 s.	Ap. 17	Ap. 22 s.	Ap. 10	..	Ap. 8
	Nov. 10 L.	..	Nov. 10 L.	Ap. 12	..	Ap. 12	Ap. 13	Ap. 14	Ap. 17	Ap. 8	..	
Sand-Martin	Nov. 29	May 1	..	Mar. 29	May 7	..	..	..	..	Oct. 7 L.	..	
Swift ..	Mar. 3	May 3	May 9	May 7	..	..	..	..	..	..	..
Nightjar ..	May 1 s.	May 1 s.	May 1 s.	May (2)	May 4 s.	May 15	Ap. 3	Ap. 3	May 10	..	..
Turtle Dove	May 1 s.	May 1 s.	May 1 s.	May 11	..	May 11 s.	May 8	May 14	May 14	..	..
Woodcock ..	Oct. 25	Oct. 25	..	..	..	..	..	..	May 17	..	..
Mar. 27 L.	..	..	..	..	..	Mar. 13 L.	..	..	..	..	..
Corncrake ..	Ap. 27 s.	May 15 s.	..	..	..	..	Ap. 23 s.	Ap. 27 s.	..	..	..
Wryneck ..	Ap. 15	..	..	Ap. 15 (1)	..	..	..	..	..	..	..

N. Nesting. E. First Egg. S. Song first heard. L. Last seen or heard.
 BERE REGIS.—Long-tailed Tit's nest completed Mar. 17 (G.H.).

(1) Unusually common. (2) Scarce. (3) Nightingale sitting on five eggs May 4th; another nest found May 12 with two eggs—bird sitting on five eggs on May 16 (G.H.).

EARLIEST DORSET RECORDS OF PLANTS IN FLOWER IN 1899.

	Dorset.	J. C. M. P.	Whitcombe.	N. M. R.	Weymouth.	F. R. B.	O. P. C.	H. J. M.	Dorchester.	E. S. R.	G. H.	Bere Regis.	D. C.	S. C.	R. F. W.	Haselbury Bryan.
Wood Anemone	Mar. 13	Mar. 13	Mar. 13	Ap. 14	Mar. 28	Mar. 28	Ap. 2	..	..	Ap. 19	Mar. 31 ^a	..	..	Ap. 17	..	..
Lesser Celandine	Jan. 6	Feb. 6	Feb. 6	Jan. 6	Feb. 20	Feb. 20	Feb. 19	Feb. 9	Feb. 17	..	Feb. 25	Feb. 15	Feb. 15	Feb. 26	..	..
Marsh Marigold	Feb. 16	Ap. 20	Ap. 20	Ap. 1	..	..	..	..	..	..	..	..	..	Ap. 1	..	..
Dog Violet	Mar. 13	Mar. 14	Mar. 14	Ap. 17	..	..	..	..	..	..	..	..	..	..	..	..
Greater Stitchwort	Mar. 24	Mar. 24	Mar. 24	Ap. 17	Mar. 30	Mar. 30	Ap. 1	..	..	..	..	..	..	..	..	..
Herb Robert	Ap. 20	Mar. 20	Mar. 20	May 18	May 6	May 6	May 10	..	..	(1)	..	..	..	..	..	..
Horse Chestnut..	Mar. 23	May 2	May 2	Ap. 3	Mar. 23	Mar. 23	Mar. 26	..	..	..	..	..	..	..	..	..
Bush Vetch	May 6	May 25	May 25	May 13*	May 11	May 11	..	..	..	..	..	..	..	..	..	..
Blackthorn	Ap. 19	Ap. 19	Ap. 19	May 25	May 5	May 5	..	..	..	..	..	..	..	..	..	..
	Feb. 24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Blackthorn	Mar. 16	Ap. 3	Ap. 3	Ap. 1	Mar. 22	Mar. 22	Ap. 1	..	..	..	..	..	..	..	..	..
Hawthorn	Mar. 20	May 22	May 22	May 10	Mar. 29	Mar. 29	..	..	..	..	..	..	..	..	..	..
Ivy	May 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dogwood	Sept. 14	Oct. 9	Oct. 9	Sept. 14	..	..	..	..	..	..	..	..	..	..	..	..
Elder	Ap. 3	May 18	May 18	May 19	..	..	..	..	..	..	..	..	..	..	..	..
	Jan. 5	Feb. 15	Feb. 15	Jan. 22	..	..	..	..	..	..	..	..	..	..	..	..
	Ap. 22	May 28	May 28	May 21	June 7	June 7	..	..	..	..	..	..	..	..	..	..
Wild Teasel	Jan. 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Devil's-bit	June 30	June 30	June 30	..	..	..	..	..	..	..	..	..	..	..	..	..
Knapsweed	Sept. 28	Sept. 28	Sept. 28	..	..	..	..	..	..	..	..	..	..	..	..	..
Field Thistle	June 12	June 15	June 15	June 17	June 12	June 12	..	..	..	..	..	..	..	..	..	..
Coltsfoot	Mar. 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yarrow	June 1	June 1	June 1	June 8	..	..	..	..	..	..	..	..	..	..	..	..
Ox-eye Daisy	Feb. 13	Mar. 2	Mar. 2	Mar. 2	..	..	..	..	..	..	..	..	..	..	..	..
Monse-eur Hawkweed	June 16	June 26	June 26	July 4	June 30	June 30	..	..	..	..	..	..	..	..	..	..
Harebell	Feb. 27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Greater Bindweed	May 13	May 20	May 20	May 25	May 13	May 13	May 20	..	..	..	..	..	..	..	..	..
Water Mint	May 28	May 28	May 28	June 3	..	..	..	..	..	..	..	..	..	..	..	..
Ground Ivy	July 2	July 2	July 2	July 27	..	..	..	..	..	..	..	..	..	..	..	..
Wych Elm	June 8	Aug. 24	Aug. 24	July 7	..	..	..	..	..	..	..	..	..	..	..	..
Hazel	Feb. 7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cowslip	Mar. 10	Mar. 10	Mar. 10	Ap. 17	Mar. 28	Mar. 28	..	..	..	..	..	..	..	..	..	..
Spotted Orchis	Feb. 18	Feb. 18	Feb. 18	Feb. 21	..	..	..	..	..	..	..	..	..	..	..	..
Bluebell	Jan. 18	Jan. 18	Jan. 18	Feb. 11	..	..	..	..	..	..	..	..	..	..	..	..
	Mar. 14	Mar. 14	Mar. 14	Ap. 3	Mar. 31	Mar. 31	Ap. 2	..	..	..	..	..	..	..	..	..
	May 1	June 1	June 1	May 1	..	..	..	..	..	..	..	..	..	..	..	..
	Mar. 22	Ap. 8	Ap. 8	May 1	Ap. 1	Ap. 1	..	..	..	..	..	..	..	..	..	..

(1) In flower all the winter (E. S. R.). (2) Hawthorn in flower at Shillingstone May 9 (H. J. M.). (3) Elder in flower at Upton June 3 (H. J. M.). (4) One bush of blackthorn observed in bloom throughout Dec., 1898, and Jan., 1899 (Bere Regis) (J. H.). (5) In flower at the end of 1898, but the flowers were killed by frost.

FIRST APPEARANCE OF INSECTS, &c., IN DORSET IN 1899.

	Dorset.	J. C. M. P.	Whatcombe.	N. M. R.	Weymouth.	E. R. B.	O. P. C.	H. J. M.	Dorchester.	H. J. M.	Upton.	E. S. R.	G. H.	Bere Regis.	D. C.	S. C.	R. F. W.	Hazelbury Bryan.
Rose Beetle	June 1	June 20		May 27	June 1								May 23		(4)	Mar. 26		
Cock-chaffer	May 15	May 15		..	..	..	..	..	..	..	..	..	..	..	July 16 (5)	July 4 (7)		
Fern Chaffer	June 21	June 21		..	..	..	..	..	..	..	..	..	..	..	(6)	Mar. 5		
Bloody-nose Beetle	Mar. 13	Mar. 13		..	..	..	..	..	..	..	..	..	..	..	..	Mar. 8		
Glow-worm	Ap. 20	June 7		July 8	..	..	..	..	..	..	..	..	..	..	..	..
Common Hive Bee, <i>h.</i>	Feb. 17	Mar. 17		Feb. 23	..	..	..	..	..	..	..	..	..	..	..	..
Wasp, <i>h.</i>	Ap. 3	Ap. 29		Mar. 7 (1)	May 12	Feb. 17	Ap. 3	..	..	..	..	..	..	..	..	..
Large White Butterfly	Mar. 20	Mar. 20		May 2	May 8	..	..	..	..	..	..	..	..	..	..	..
Small White Butterfly	Mar. 13	Mar. 13		Mar. 28	Ap. 30	..	..	..	..	..	..	..	..	..	..	..
Orange-tip Butterfly	Ap. 16	Ap. 16		S. (2)	May 11	Ap. 20	May 24	..	..	..	..	..	..	..	..	..
Meadow-brown Butterfly	June 14	June 15		June 17	June 14	..	..	..	..	..	..	..	..	..	..	..
Wall Butterfly	June 2	July 12		June 2	Feb. 11	Feb. 14	..	..	..	..	..	..	..	..	..	..
Brimstone Butterfly, <i>h.</i>	Feb. 11	Mar. 12		..	June 3	..	..	..	..	..	..	..	..	..	..	..
Painted Lady, <i>h.</i>	May 5	May 5		..	June 14	..	..	..	..	..	..	..	..	..	..	..
Cinnabar Moth	May 13	May 13		June 3	..	..	..	..	..	..	..	..	..	..	..	..
Curant Moth	June 12	June 12		July 16	..	..	..	..	..	..	..	..	..	..	..	..
Viper	Feb. 21	Feb. 21		..	..	..	..	..	..	..	..	..	..	..	..	..
Frog Spawn	Feb. 9	Feb. 11		..	..	..	..	..	..	..	..	..	..	..	..	..

h. Hibernated. S. Scarce.

(1) One seen Nov. 12 at flowers. No worker seen till Aug. 16. Scarce. (2) None seen this year near Weymouth, common between Dorchester and Blandford. (3) First swarm May 28. Bees flying about on Nov. 6 in very mild weather (E. S. R.). (4) Dr. Curme records a Cock-chaffer for Jan. 2, but this is surely a mistake for some other beetle? (5) A swarm of fern chaffers. (6) Seen on Nov. 8. (7) Last seen Nov. 5.

WEYMOUTH.—Humble Bee Mar. 11. Peacock butterfly Ap. 17, usually very scarce at Chickrell. Red Admiral May 13, Nov. 15. Clouded Yellow July 27, s. (N.M.R.) CORFE CASTLE.—Holly Blue (*Lycæna Argiolus*), May 11 (E. R. B.). SHERBORNE.—Humble Bee, March 28 (S. C.).

INDEX TO VOLUME XXI. OF THE PROCEEDINGS

OF THE

Dorset Natural History & Antiquarian Field Club.

By E. W. YOUNG.

- Abbot's Dorsetshire, xxv.
 Abies excelsa, 9.
 Acanthodidæ, lxiv.
 Acanthopteri, lxi.
 Accipenser (Sturgeon), xlvii., lv., lviii.,
 lxii., lxiv.
 Acland, Capt., xxiv., xxv.
 Ælfric, first Abbot of Cerne, 159.
 Ælfwold, Bishop of Sherborne, 159.
 Æthelweard, Bishop of Sherborne, 159.
 Affpuddle, xxii.
 Aldhelm, Bishop of Sherborne, 194.
 Alfred, King, xxi., 194.
 Alington, Lord, 214.
 American Cross, 169, 170, 208.
 Amiidæ, lv., lxii., lxiv.
 Amiurina, xlviii.
 Anglo-Saxons, History of, xxv.
 Anubis, 166.
 Apep, 181, 182.
 Apollo, 163, 164, 168.
 Arapaima, xlviii., xlix.
 Arbor periclixion, 184, 187.
 Arbutus unedo, 13.
 Arctostaphylos alpinus 3.
 uva-ursi, 11.
 Armlet, xxii., xxiv.
 Arrow Heads, xxiv.
 Ashe (Devonshire), 220.
 Aspidorhynchus, lix., lx., lxx.
 Aspreto, lxi.
 Asterolepis, lvi.
 Atlas flora, 14.
 Ashmolean Museum, xxxix.
 Astragalus Alpinus, 3.
 Athelhampton, xxi.
 Athelstan, xxi.
 Atlantis, 9.
 Austen, R. A. C., 4.
 Avebury, 151, 152, 156.
 Baikal, Lake, xlviii.
 Baker, E., 13.
 J. G., 6, 13.
 Rev. Sir Talbot, xxi., xxxviii.
 Ball, J., 14.
 Banks, Sir Joseph, 143.
 Bankes, A., xxiv.
 Canon, xxiv
 E. R., 236.
 John, 146.
 Barbel, lxiii.
 Barclay, E., 152.
 Barnes, Rev. W., 108.
 Rev. W. Miles, xxv., xxxv.,
 xxxvi., 109, 151.
 Barnston, 221.
 Baskett, Rev. C. R., xxiv.
 Baxendale, Mrs., xxvi.
 "Beal" (weasel), xxii.
 Bede, Venerable, 194.
 Beer Hackett, Church, 215.
 Belonostomus, lxx.
 Betula Nana, 3, 11.
 Bible, Early English, xxii., 193.
 Authorized Version, 199, 201, 202.
 Bishops', 200.
 Breeches, 195, 199.
 Coverdale's, 195.
 Cranmer's, 198.
 Crumwell's, 198.
 Douai, 201.
 Genevan, 200.
 "Great He," 201.
 "Great She," 201.
 Matthew's, 197, 198.
 Mazarine, 195.
 Revised (New Testament), 202.
 Rheims (New Testament), 200.
 Rogers, John, 191.
 Taverner's, 198.
 Translations of Aldhelm, (King)
 Alfred, Bede, Cædmon,
 Wycliffe, &c., 194.
 Tyndale, 195.
 Vinegar, 202.
 "Whittingham's," 199.
 "Bibliographer's Manual" (Lowndes),
 xxv.

- Birds, First Appearance of, 236.
 Rare and other, in 1899, 237.
 Black Cap, 238.
 Bullfinch, 237.
 Cuckoo, 237.
 Duck, Wild, 237.
 Linnet, White, 238.
 Nightjar, 237.
 Nuthatch, 237.
 Petrel, 237.
 Sand Martin, 237.
 Snipe, 238.
 Starling, 238.
 Swallow, 238.
 Swift, 237.
 Woodpecker, Spotted, 237.
 Wryneck, 237.
 Blackmore, Forest of, 218.
 Blakemore, Forest of, 161.
 Blakemore, Giles, 221.
 Henry (Canon of Wells),
 221.
 Thomas, 221.
 Blakiston, Hugh, xix.
 Blenny, lx., lxi.
 Bodington, Rev. E. J., 236.
 Bodley, John, 199.
 Boulder Clay, 9, 11.
 Boiling Rock, 189.
 Bogdanow, M., 4.
 Bos primigenius, 11.
 Bottle, Leather, xxiv.
 Boulder Clay, 9, 11.
 Bradford Abbas, 125.
 Brandis, xxiv.
 Brill, lxii.
 Bristol, Excursion to, in 1767, 143.
 Natural Hist. Society, xxii.
 British Assocn., Report, xxii., xxv.,
 xxvii.
 Bronze, Notes on, xx., xxii., 40.
 Celtic and Roman bronze
 objects, Dorset-found, in
 Dorset County Museum, 49—
 celts 49—socketed celts 53—
 daggers 54—spear heads 58—
 shields and helmets 59—
 pins 61—bracelets, armlets,
 &c., and rings of various
 kinds, some for harness 63—
 rings of various kinds 70—
 clasps and buckles 73—
 brooches, Roman, 77—
 fibulae, Roman, 78—Miscel-
 laneous 85.
 Browne, A. J. Jukes, xxv.
 Brown, Sampson, 221.
 Bryanston, 193.
 Bryonia dioica, 3.
 Brymer, Rev. J. G., xxiv.
 Buckland Newton, 203.
 Buckman, Professor, 125.
 Buckshaw, 222.
 Butterflies, British, 228.
 Cadbury Castle, 204.
 Carp, lxii., lxiii.
 Cat-fish, lxii.
 Cædmon, 194.
 Calamoichthys, lv., lvii.
 Cambridge, Col. J. Pickard, xxix.
 F. O. Pickard, 21.
 Rev. O. Pickard (Hon.
 Treas.), xxiii., xxvi., 18,
 150, 236.
 Rev. R. J. Pickard, 19, 22.
 Carcharias, liii.
 Carcharodon, liii.
 Carpenter, G. H., 18, 19, 22.
 Carter, Mr., xxiv.
 Castle Hill House, 204.
 Caundle Marsh, Church, 215.
 Caxton, 194, 195.
 Cecil, Lord E., xxvii., xxxv., 15, 17.
 Celtic, Tumuli, 188, Urn, xxiv.
 Cephalaspidae, lv., lxiv.
 Ceratodus, xlviii., liv., lxiv.
 Cerne, Notes on Book of, xxii., 158.
 Cestracion Philippi, xlv. lii.
 Chafin, Mr. George, 144, 145.
 Chisbury Rings, xxxv., 188.
 Charles I., 193.
 Chettle, 144.
 Chimaeridae, l., liv.
 Christian Symbols:
 Duplex, the, 169, 170, 208.
 Lotus, the, 171, 172.
 Octagon, the, 171.
 Tail-Biting, 182.
 Triquetra, the, 169.
 Christ's College, Oxford, 198.
 Chrysostom, 194.
 Chub, lxiii.
 Churchill, John, 219.
 Winston, 219.
 Churn ("Plump"), xxiv.
 Cicendia filiformis, 2.
 Clavell, John, 221.
 Clausilia Rolphii, 3.
 Clematis Vitalba, 2.
 Clypeaster Ægyptiacus, xxv.
 Coast Erosion, xxvii., xxx.
 Cobham, (Derbyshire), 231.
 Cobitidae, xlvii.
 Coccosteidae, lvii.
 Cod, lxi.
 Coelacanthidae, lvii.
 Codex Alexandrinus, 193.
 Coins, English, found at Rome, xxi.
 Colfox, W., xxviii.
 Comacine Guild, 185, 186, 187.
 Cook's Dorsetshire, xxv.
 Coombs, Miss, xxv.
 Coral Rag Rock, xxvii.
 Cornish, Vaughan, xxvii.
 Corrigiola littoralis, 2.
 Coverdale, Myles, 195, 196.
 Cox, Col., first Chief Constable of Dor-
 set, xxv.

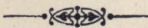
- Cradle, old oak, xxiv.
 Cranborne Chase, 144.
 Cranmer, 198.
 Creed, S., 236.
 Crichel, 146, 148.
 Crickmay, G. R., 210.
 Crockery, old, found in Dorset Cottages, xxiv.
 Crumwell, Sir Thomas, 198.
 Crustacean, Fossil, xx.
 Culliford Tree Barrows, 190.
 Cunningham, E., xxiii., xxx., xxxv., 154, 156, 157, 188, 191, 203.
 Rev. E., xxv.
 Curme, D., 236.
 Cyclostomi, xlvii.
 Dace, lxiii.
 Dale, C. W., xxx., 218, 223.
 Captain, 224.
 E. R., 216.
 Family, 214.
 James Charles, 220, 225.
 Dawkins, Professor Boyd, xxxix., xl., 4, 5.
 Devon and Cornwall Bank, gift from Directors, xxiv.
 Dewlish, 12.
 Dipnoi, li., liii.
 "Divi Britannici," 220.
 Dixon-Galpin, W., xxv.
 Donisthorpe, Horace, 19, 20, 24.
 Dorchester, xxi.
 Mosaic, the (Olga Road), 163, 206, 207 (see also illustration)
 Political Squib, xxv.
 Dorset Photographically Illustrated, xxv.
 Dory, John, lviii.
 Draba rupestris, 3.
 Drake, Sir John, 220.
 Dress, Lady's, xxiv.
 Dungeon, or Dunset Camp, xxx., 203.
 Eastbury, Excursion to, in 1767, 143.
 Eaton, Henry Storks, lxx., 111.
 Eel, conger, lxiii.
 electric, lxiii.
 sand, lx., lxi.
 Eggardon Hill, xxviii.
 Egyptian Influence in Britain, 165, 166, 170, 207.
 Egypt Exploration Fund, Publications, xxv.
 Elasmobranchii, xlix, lx.
 Elephant, African, 5.
 Elephas antiquus, 11.
 meridionalis, 12.
 Elk, Irish, 11.
 Elm Root, Curious, xxiii.
 Elwes, Capt. G. R., xxii., xxiii., (Hon. Treas.), xxvi., xxix., xxx.
 Ensor, Dr., xxv.
 Erica arborea, 15.
 ciliaris, 2.
 codonodes, 15.
 lusitanica, 1, 14, 15, 17.
 polytrichifolia, 15.
 Eternity, Symbol of, 177, 180.
 Ethelrede, St., 160.
 Ethewold, Bishop of Worcester, 159.
 Euphorbia hyberna, 13.
 Evans, W., 9, 20, 21, 22, 23, 24, 39.
 Every, John, Monument, 216.
 Faroe Island, 8, 9.
 "Fay" ("succeed" or "do"), xxii.
 Fearon, Rev. Dr., xxxi.
 Filleul, Rev. S. E. V., xxiii.
 Financial Report, xxiii.
 Fir, Scotch (*Pinus Sylvestris*), 8, 9.
 spruce (*Abies excelsa*), 8, 9.
 Fish, xlii.
 Flail, xxiv.
 Flat-fish, lxi.
 Flints, worked, xxiii., xxiv.
 Flora, British, influence of climatic and geological changes upon, xxii.
 Flower, Sir Henry, xli.
 Floyer, G. W., xxii.
 Foffordeston (now Forston), 211.
 Folke, Church, 215.
 Forbes, F. H., 204.
 Professor E., 2, 3, 5, 9, 10, 13.
 Fordingbridge pottery, 203.
 Fordington Field, xxiv.
 Forest-bed (Cromer), 9, 11, 12.
 Franklin, Benjamin, 202.
 Frey, 208.
 Fylfot, the, or Swastika, in Britain, 166, 167, 168, 171.
 Galpin, Rev. F., xxv.
 Ganoids, xliv., xlv., xlvi., xlviii., xlix, li., liv., lviii., lxx.
 Garrisons in the Romano-British Period, 163, 168.
 Genoa, Via Nuova at, 229.
 Gentiana Pneumonanthe, 3.
 Gervais, M., 7.
 Gilbert, Bishop of Enaghduane, 159.
 Gillingham Forest, Boundaries of, 161.
 Glacial Age, xxviii., 3, 6, 9, 10, 11.
 Glandfield, Joane, 217.
 Glanville, Geoffrey de, 211.
 Henry de, 211, 222.
 Henry de, Sir, 211.
 John de (1275), 211.
 John de (1350), 212.
 Ranulph de, 211.
 Sibylla, 211.
 William, 211.
 Glanville-Richards, W. U. S., 212.
 Glyn, Sir R., xxv.
 Goathill Church, 215.
 "Gog and Magog," xxx., 218.
 "Golden Legend," 195.
 Gould, Mr., xxiv.
 Gray, Asa, 11, 16.

- Greatley, Synod, xxi.
 Greeks, the, 165, 170, 176, 207.
 Greenland, 8.
 Grenville, Mrs., 143.
 Groves, T. B., xxiv., xxix.
 Gudgeon, lxiii.
 Gulf-weed, 9.
 Gyrodus, lix., lxxv.
 Haddon (Derbyshire), 231.
 Hall, Sir R. C., 106.
 Mr., 191.
 Hampshire Field Club, Proceedings, xxii.
 Handcuffs, xxiv.
 Hansford, C., xxv.
 Hardwick (Derbyshire), 231.
 Hardy, Thomas, xxii.
 Hartsfoot Lane, 222.
 Hatfield (Herts), 231.
 Haydon Church, 215.
 Headbourne Walley Church, xxxiii.
 Henley, Barbara, Lady, 216.
 Hennings of Poxwell, xxxvi.
 Henry, Bishop of Enaghduane, 160.
 Hermitage, Church, 215.
 Hibbs, G., 236.
 Higgs, A. C., xxv.
 Hilfield Church, 215.
 Histionotus, lxxv.
 Hod Hill, xxiv.
 Hogg, B., xxii., xxiv.
 Holnest Church, 215.
 Holwall, Walter, 217.
 Holwell, Church, 216.
 Holwel, William, 221.
 "Holy Rood," its decoration, 177.
 Holy Trinity, London, 198.
 Hooker, Sir Joseph, 3, 10, 14, 16.
 Horns, 166.
 Horseshoes, Roman (?), xxii, 137.
 Horton, 147.
 Hudleston, W. H., xxvii., xxxv.
 Huntingdon, Francis Hastings, Earl of, Henry., Earl of, 219.
 Hutchins' "Dorset," 150.
 Iceland, 8.
 Ichthyodorulites, lii.
 Implements, Neolithic, xxviii.
 Insects, First Appearance of, 236.
 Intreci :
 Magical, 183.
 Meander, 171.
 Phyllomorphic, 184.
 Quadruplex, 174.
 Skeuomorph of Basketry, 176.
 Zoomorphic, 177, 178, 179, 183.
 Inula conyza, 3.
 Irish Churches, 186.
 Cross, 185.
 Illuminated manuscripts, 183, 209.
 Isaiah, Book of, Latin MS. of 13th century, xxii., 194.
 Isis, 165, 166, 167.
 Jacob, F., xxiv.
 Javelin Head, xxiv.
 Joscelyn de Bohun, 159.
 Kent, W. D., xxxv.
 King, Rev. John, 217.
 King's Stag, 221.
 Kingston Hall, 146.
 Knole (Sevenoaks), 231.
 Knox, John, 199.
 Kuypers, Dom., 161.
 Lamna cornubicus (Porbeagle), lii.
 Lamp stand, iron, xx.
 Lampreys (Cyclostomi), xlv., xlvii.
 Lancelet (Amphioxus), xlv., xlvii., xlvii.
 Lartet, M., 7.
 Legionary Ensigns, Roman, of Solar significance, 171, 172.
 Leigh, Mrs., Monument of, 214.
 "Lepidoptera of Dorset," 228.
 Lepidosiren, xlv., liv., lxxv.
 Lepidosteus, xlii., xlviii., xlix., lv., lvii., lxxv.
 Lepidotidae, lvii.
 Lillington, Church, 215.
 Linum perenne, 3, xxxii.
 Lima Gigantea, xxii.
 Loach, lxiii.
 Loddon, 190.
 Lollards, 194.
 Lombard Kings, the, 186.
 Long Burton, 215, 216.
 Lophobranchii, lxi.
 Lotus derivatives, 170, 171, 172, 173, 207, 208.
 Lotus hispidus, 2.
 Lusitanian Flora, 2, 11, 12, 13, 14.
 Lydlinch, 221.
 Lynx, 5.
 Lytchett Heath, 15, 17.
 Mackerel, xlviii.
 Maiden Castle, 188, 203, 204.
 Mammoth, 5, 6, 11.
 Mansel-Pleydell, J. C. (President), xxii., xxxiii., xxvi., xxvii., 1, 125, 147, 236.
 March, Dr. Colley, xx., xxviii., xxx., xxxv., lxx., 4, 151, 162, 205.
 Marlborough, Great Duke of, 218, 220.
 Marriott, Sir W., 202.
 Marriott-Smith, Col., xxv.
 Mayo, Rev. Canon C. H., xxx., 210.
 Medford, Richard, Bishop of Salisbury, 160.
 Medhurst, Mr., 191.
 Megalosaurus Bucklandi, casts of, xx.
 Mendicago denticulata, 2.
 Merchant Adventurers of Antwerp, 198.
 Mesodon, lix.
 Meteorite, xxvii.
 Meteren, Jacob van, 196.
 Microdon, lix.
 Miller, Hugh, lvi., lvii.
 Milton Abbey, xxi.
 Mithraic cult, 163, 164, 165, 171.

- Miocene Age, 12.
 Monteaute, Henry Pole, Lord, 219.
 Simon de, 219.
 William de, Earl of
 Sarum, 219, 221.
 Moore, Mr., xxv.
 More, Robert (of Marnhull), 212.
 Sir Thomas, 194.
 Moreton Church, xxxvii.
 House, xxxvii.
 Morteaus, Roger de, Bishop of Salis-
 bury, 160.
 Mortival, Roger de, Bishop of Salis-
 bury, 160.
 Mosaic Pavements, 162, 206.
 Moule, H. J., xx., xxii., xxiii., 20, 40,
 105, 188, 236.
 Murænidæ, lxiii.
 Murray, Andrew, 7, 9.
 Museum, Dorset County, xxiii, 49.
 Musical Instruments, Ancient, xxv.
 Myosurus Minimus, 3.
 Myriacanthus, li.
 Najas marina, 12.
 National Trust for Places of Historic
 Interest, &c., Sub-Committee for
 Dorset, xix., xxi., xxx.
 Neolithic Stone Implements, xxviii.
 Newburghs, 212.
 Newgate, 198.
 Newland Manor, 218, 221.
 Newland, Over, farmhouse, 221.
 Newton Monteaute, 220.
 Nicholson, Mr., 20, 21, 22.
 Nisbett, Mr., xxxiii.
 Norway, 8.
 Notidanus, li.
 Nunwell (I. of W.), 231.
 Oglander, Sir William, 231.
 Onchus, lii.
 Ophiopsis, lxv.
 Osiris, 165, 166, 175.
 Osteolepis, lvii.
 Ostracion, xlii.
 Oxalis corniculatus, 2.
 Palæoniscidæ, lv.
 Palæospinax, l.
 Papal (Clement V.) seal, xxviii.
 Parnham, 229.
 Architecture of, 231.
 Patriarch of Constantinople, 194.
 Peacock, as a symbol, 174, 184,
 187.
 Peacocke, Rev. E. A. W., 20, 24, 25.
 Pecten, xx., xxiii.
 Pembroke Hall, Cambridge, 198.
 Penshurst (Kent), 231.
 Perceval, S. G. Esq., 143.
 Perch, lxi.
 Peter's Pence, xxi.
 Phenician Colonisation, xxxv., 154.
 Pholidophorus, lxv.
 Photographic Survey of Dorset, xxv.
 Pike, xlvii., lxiii.
 Pinus maritima, 9.
 sylvestris, 8, 9.
 Pitt-Rivers, General, xxxix.
 Placodermi, lvi., lxiv., lxv.
 Plants, First Flowering of, 236.
 Plants found at St. Minver, Cornwall,
 and Bradford Abbas, Dorset, 125,
 —Found at S. Minver, absent at
 Bradford Abbas, 127—Maritime plants
 found at S. Minver, absent from
 Bradford Abbas, 129—found at Brad-
 ford Abbas, absent at S. Minver, 129—
 plants which occur in both places,
 132.
 Pleistocene Age, 3, 4, 5, 8.
 Pliocene Age, 4, 12.
 Pocket Pistol, old, xxiv.
 Pole, Sir Richard, 219.
 Polycarpon tetraphyllum, 2.
 Polypterus, lv., lvii.
 Pomegranates, xx.
 Pope, Alfred, xx., lxx., 105.
 J. A., xxiii.
 Postumus, "Emperor of Gaul," 205.
 Poundbury, 188, 190.
 Poxwell, Circle, xxxv., 150.
 Manor House, xxxv., xxxvi.
 Preston Mosaic, 205 (see illustration
 also)
 Preston Beach, effects of storm, xxix.
 Prideaux, C. S., 20.
 Pridham, Mrs., xxiv.
 Protopterus, liv., lxiv.
 Pteraspidae, lxiv., lxv.
 Pterichthys, lvi.
 Pycnodontidæ, lviii., lxv.
 Pyenodus, lxv.
 Pygaster semisulcatus, xxii.
 Quarrel Heads, xxiv.
 Ra, 169, 181, 182.
 Rainfall, in Dorset in 1899, 111;
 Observers' Notes, 113; Tables—
 monthly depth, 118; rainfall in 1899,
 120; average monthly rainfall, 122;
 temperature, &c., at Winterborne
 Steepleton, 123; rainfall on days of
 thunderstorm and of heavy rain, 124.
 Ralls, Mr., xxiv., xxviii.
 Ray, xlix.
 Reade, Capt. J. E., 25.
 Red Crag, 3.
 Red-deer, 11.
 Reid, Clement, 4, 5, 9, 13.
 Reindeer, Caribou, 5, 7.
 "Reliquary Quarterly Archæological
 Journal and Review," 150.
 Renaissance, architecture of, 231.
 Richardson, Nelson M. (Hon. Sec.),
 xxii., xxvi., 193, 236.
 Rickards, Capt. Arthur, xx., xxii., xxv.,
 xxvii., 137.
 Ridgeway, xxiv.
 Barrows, 190.
 Rimbury, 188, 191.

- Robinson, Vincent J., 229.
 Rodd, E. S., 236.
 Roger, Sir Henry Fitz, 197.
 Rogers, John, 193, 197, 198.
 Roman Pavement (South Street, Dorchester), xxiv. (Olga Road, Dorchester) xxiv., xxv. (Preston) xxxv.
 Pottery, 203, 204.
 Quern, 203, 204.
 Roman Legions in Britain, their composition, 163, 171.
 Roundchimneys, xxx., 218, 220; Royal Manor, 221.
 Rubia peregrina, 2.
 Rules, Alteration of, xxvii.
 Ryall, Mr., xxiv.
 Sahara, 204.
 Salmon, xlv.
 St. Margaret Moyses, rector of, 198.
 St. Minver (Cornwall), 125.
 St. Pancras, prebend of, 198.
 St. Sepulchre, vicar of, 198.
 Salix cinerea, 11.
 Sarum, Alice, Countess of, 219
 John, Earl of, 219.
 Margaret, Countess of, 219.
 Thomas, Earl, of 219.
 Sargassum bacciferum, 10.
 vulgare, 10.
 Saxifraga Geum, 13.
 umbrosa, 13.
 Scandinavian Flora, 3.
 Scaphirhynchus, lv., lviii.
 Scopelidae, lxii.
 Scyllidae, Dog-fish, lii.
 Selachii, liv., lxxv.
 Serapis, 163, 165, 166.
 Setaria verticillata, 1, 14, 16.
 Shaftesbury, xxi.
 Shark, xlix.
 blue, liii.
 hammer-headed, liii.
 Sherborne, Minster, Buckler's Engraving, xxv.
 "Weekly Entertainer," xxv.
 Short, Mrs., xxiv.
 Sibbaldia procumbens, 3.
 Sigurd, 179.
 Siluridae, xlv., lxii, lxxv.
 Sime, H. D., xxv.
 Simon of Ghent, 160.
 Slater, Mr., xxv.
 Smith, F. P., 18, 19, 21, 23.
 Solar Cult, 163.
 symbols, 168, 169, 170, 171, 173, 175.
 birds, 170.
 duplex, 169, 170, 208.
 glory, 170, 172, 207.
 quadruplex, 175.
 simplex, 170.
 triplex, 175.
 wheel, 208, 209.
 Sole, lxii.
 Solenorrhynchus, lxi.
 Solly, Rev. H. S., xxviii.
 Somerset Archaeological Society, Proceedings, xxvii.
 Spatularia, lv.
 Spartina alterniflora, 16.
 stricta, 16.
 Townsendi, 1, 14, 16.
 Sphaerodus gigas, lix.
 Spiders, New and Rare British, xxiii., 18—List of new and rare, found in 1899, 19—descriptions of the new genera and species, 26.
 Spitzbergen, 8.
 Spoon, Brass or latten, xxiv.
 Squatina, li.
 Stephens, R. Darell, 125.
 Sting-fish, 1.
 Stock Gaylard, Church, 215.
 Stoke Abbot, xxiv.
 Stone, W. Boswell, xxv.
 Stonehenge, 151, 152, 153, 156, 157.
 Strahan, Mr., 108.
 Strode Family, 231.
 Sturt, Humphry, 146, 147.
 Sword-fish, lxi.
 Tail-biting, symbol, 180.
 Tamus communis, 3.
 Tarrant Gunville, 144.
 Taylor, Dr., 153.
 Teleostei, xlv., xlv., xlix., liv., lviii., lx., lxiv., lxxv.
 Tesserae, their arrangement and material, 206.
 "Thomas Matthew," xxii., 196.
 Thrush's Nest, xxii., xxiii.
 Tilley, M. H., xxiii.
 Tope, liii.
 Torpedo, 1, lxiii.
 Trackway, Ancient British, discovered at Dorchester, xx., 105—another supposed trackway previously struck at Dorchester, 108.
 Triangles, as a symbol, 173, 208.
 Tunis, 13.
 Turbot, lxii.
 Twillow, Henry, 160.
 Tyndale, 195.
 Uppill, John, xxiv.
 Upwey, 16.
 Vase, the, as a symbol, 173, 174.
 Veronica alpina, 3.
 Via Iceniana, 106.
 Wallace, Dr. A. Russell, 11.
 Warburton, Cecil, 23, 24, 25.
 Wareham, xxi.
 Warne, Charles, 105, 190, 191.
 Warne's "Ancient Dorset," 105, 190, 191.
 Warren, W. T., xxxii.
 Wasp's Nest, xxiii.
 Watson, H. C., 1.

- Waugh, Rev. W. R., xx., xxii., xxiii.,
 xxix.
 Webb, E. Doran, xxii., 158.
 Wellman, Dr. Simon, 220.
 West Hall, 217.
 Weyden, Adriana de, 198.
 Weymouth, Member for, 220.
 " Observations on Sea
 Bathing," xxv.
 Wheeler, Rev. Canon, 236.
 White Hart, 213, 221.
 Williams-Freeman, Rev. H. P., xxii.,
 xxiii.
 Wimborne, xxiv.
 Winchester, xxxi., History of, xxxii.
 Cathedral, xxxiii.
 County Hall, xxxi.
 City Cross, xxxi.
 College, xxxi.
 Guildhall Museum, xxxii.
 Hall, xxxi.
 St. Cross Hospital, xxxiii.
 Winchester, West Gate, xxxi.
 Wittenburg, 198.
 Wolvesey Castle, xxxii.
 Woodward, A. Smith, lviii.
 Wootton Glanville, xxx., History of,
 228.
 Battle, fought at, 222.
 Bells, 217.
 Chantry, 212.
 Communion plate, 217.
 Church, xxx., 210.
 Manor, 218, 219.
 Manor House, xxx., 223.
 china, 223.
 pictures, &c., 224.
 insects, lepidoptera,
 birds, &c., at, 225.
 Register, 216.
 Wootton North, Church, 215
 Wycliffe, 194.
 Zoarces viviparus, lxi.





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